Exploring the feeling of embitterment in the workplace

by

Evie Michailidis

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Faculty of Health and Medical Sciences

University of Surrey

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Declaration of originality

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Abstract

Embitterment has been described as the emotion generated in the aftermath of an event experienced as unjust and unfair. Although embitterment is most commonly presented in the work context, research on workplace embitterment has remained scarce due to the fact that the concept of embitterment is rather new. This thesis aimed to shed some light on the prevalence of this emotion, its developmental context, outcomes and ways of treating it.

Three studies were carried out. In study 1, results from a cross-sectional study (N = 337) showed that procedural injustice and over-controlling supervision were significant predictors of workplace embitterment. Findings also showed that embitterment contributes significantly to the prediction of increased affective rumination and reduction in detachment, which are indicative of insufficient recovery from work. In study 2, results from a six month longitudinal study design (N = 169) showed that distributive injustice and informational injustice as well as over controlling supervision in Time 1 significantly predicted workplace embitterment six months later. Results also suggested that workplace embitterment in Time 1 significantly predicted reduced levels of work engagement and job satisfaction six months later. In study 3, results from a randomized control trial using participants who were embittered in their workplace showed that participants who completed an expressive writing exercise (N = 23) did not show significantly lower levels of embitterment, affective rumination, higher levels of detachment, work engagement, job satisfaction, either improved sleep quality, compared to participants who completed the factual writing (N = 21).

In summary, results from this thesis suggests that breaches in organisational justice, can trigger feelings of workplace embitterment which can impact negatively employees’ ability to psychologically unwind from work, as well as their work engagement and job satisfaction levels. The unfolding of further features of workplace embitterment and the development of interventions to improve this feeling seems a worthwhile future endeavor.
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Dedicated to the memory of my beloved dad, Andreas, who always believed in my ability to succeed and taught me to never give up no matter what... You are gone but your belief in me has made the end of this journey possible. We miss you, we love you and always will.

Παπά μου, τούτο είναι για εσένα και ας είσαι μακριά.

Με απέραντη αγάπη,

Το χρυσάφι σου
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Publications arising from thesis

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Chapter 1. Introduction

1.1. Background to the current research

Over the last century there has been a dramatic increase in the number of working people suffering from work-related illness. According to the Health and Safety Executive, in 2015/16 1.3 million working people in Great Britain were suffering from a work-related illness, of which 488,000 cases were work related stress, depression or anxiety, a prevalence rate of 1510 per 100,000 workers. Work related illness is also a growing concern for employees and employers in the European Union. According to the Fourth European Working Conditions survey carried out in 2005, 22 % of European workers reported suffering from stress and other work-related illnesses such as fatigue.

Undoubtedly work related illnesses have consequences both for the businesses and the individual. For the business, working population’s mental health issues resulted in 11.7 million working days lost in 2015/16, a prevalence rate of 23.9 days per case (Health and Safety Executive). Obviously, any organisation is affected by mental health issues in the workforce. The Centre of Mental Health estimated that the business cost of mental ill health at work reaches about £26 billion each year in the UK, of which £15.1 billion per year is associated to reduced productivity at work; £8.4 billion per year in sickness absence; and £2.4 billion per year in replacing staff who leave their job because of mental ill health. For the individual, the consequences of work-related illness have been well documented including burnout, depression, anxiety, sleep disturbances, mental fatigue. However, one type of work-related illness that researchers have overlooked is that of embitterment. This thesis aims to shed some light on the prevalence of this emotion, its developmental context, outcomes and even identify ways of treating it (see section 1.3. for ‘Research aims’).
The main risk factors for work-related mental ill health, according to the European Foundation of the Improvement of Living and Working Conditions, include heavy workload, long working hours, poor support at work, poor relationships with colleagues, lack of control and autonomy at work, and injustice (European Foundation of the Improvement of Living and Working Conditions, 2017). Injustice in the workplace comes in different forms (see Chapter 2) and levels, and its negative impact on employees’ mental health is significant. It is therefore important for companies and organisations to appreciate the importance of workplace fairness both for the employees’ and the organisation’s benefit; as in doing so the development of workplace mental health illness can be bounded and even prevented.

1.2. Introducing the main thesis constructs

In the context of highlighting the importance of being fairly treated in the workplace and its cost to the employee and the organisation; this thesis is primarily concerned with workplace embitterment (being in a negative state because of injustice and unfairness), its predictors and its consequences. When an individual experiences an unjust, personal humiliating or hurtful event which results in psychological stress and even intense desire for revenge, according to Linden (2003), the individual is suffering from embitterment. In the occupational health literature, the construct of embitterment is relatively new. Dunn and Sensky (in press) as well as Sensky, Salimu, Ballard and Pereira (2015) conducted a study among NHS staff and revealed that occupational health professionals frequently encounter employees who are in a negative state because of unfair or unjust treatment by their supervisors or by their employer. The high prevalence of embitterment in the work population has been supported in a recent study (Study 1) conducted by Michailidis and Cropley (2016) exploring the predictors and consequences of embitterment in the workplace,

1 Full definitions of the main thesis constructs are provided in Chapter 2; the definitions here are for the purposes of introduction and to contextualise the thesis research aims.
where more than half of the employees (75 %, n = 252 out of N = 337) scored above 1.6 on the embitterment scale, which indicates, according to Linden, the presence of embitterment. The fact that more than half of the sample reached the critical discriminant value of embitterment, suggests that embitterment does exist in the workplace and is becoming a common feeling among employees.

Given the limited number of studies conducted on workplace embitterment and the fact that the workplace is often seen as an arena of injustice and unfairness, research exploring workplace embitterment seems warranted. This thesis addresses the gap in the literature of occupational health psychology regarding the predictors of workplace embitterment. Some initial effort in exploring the predictors of workplace embitterment has been conducted by Sensky et al., (2015) who found that staff showing embitterment rated procedural justice and organisational support lower than other staff. However, Sensky et al., (2015) focused only on one type of organisational justice. Therefore, further research is needed in order to unfold other predictors of workplace embitterment.

While workplace embitterment is the main construct of interest in this thesis; in order to provide a more holistic view of embitterment in the workplace, organisational justice, supervisory control, work-related rumination, work engagement, job satisfaction and sleep quality are also measured and assessed throughout. Injustice and unfairness are considered as proxy for embitterment and procedural injustice (a form of organisational justice) has already been found to relate to embitterment. Therefore, the four-factor model of organisational justice is considered in this thesis in order to get a clearer view of what predicts workplace embitterment. Supervisory control is also measured as a predictor of workplace embitterment as it has been considered as a form of organisational injustice. Work-related rumination has become a growing area of study in the occupational health psychology literature and more specifically in the study of recovery from work. Work-related rumination (perseverative
thinking about work in non-work time) might interfere with recovery processes by extending the demands of work into non-work time. Evidence for the damaging effects of work-related rumination and insufficient recovery are accumulating. In the clinical literature, individuals who suffer from embitterment have been found to engage in ruminative thinking. However, the features of these ruminations are still unknown. Thus, this thesis aims to explore the impact embitterment has on employees’ ability to recover from work and the features of embittered employees’ ruminations. Furthermore, work engagement, job satisfaction and sleep quality, have been found to be impacted by work-related rumination and eventually they might be impacted by embitterment as well, therefore they are included in order to provide a fuller picture of the consequences of embitterment in the work context. To my knowledge, no previous study has looked at the consequences of workplace embitterment, so this thesis also aims to address this gap in the literature as well.

1.3. Research aims

The overall aim of this thesis is to provide a further insight into the nature of embitterment in the workplace. Embitterment is experienced by virtually everyone, but it is only recently that researchers have addressed this condition. Embitterment was defined in 2003 by Michael Linden. Despite the characteristic features of embitterment, such as revenge and even suicidal fantasies, researchers in the occupational field have overlooked this phenomenon. With only five studies\(^2\) being published on embitterment in the workplace, the main objective of this thesis is to examine the feeling of embitterment within the workplace. This would potentially shed some light on the prevalence of this emotion, its developmental context, outcomes, with the eventual aim of treating it. Therefore, this thesis has the following research aims:

\(^2\) With one study being the first study of this thesis (Michailidis & Cropley, 2016; Appendix A). See Chapter 3.
• To extend the literature base regarding workplace embitterment characteristics, causes, chronicity and interventions.

• To explore the predictors of workplace embitterment, i.e. organisational injustice and over-controlling supervision.

• To explore the consequences of workplace embitterment, i.e. work-related rumination, work engagement, job satisfaction and sleep quality.

• To assess longitudinally the predictors and consequences of workplace embitterment.

• To explore the chronicity of workplace embitterment.

• To assess the effectiveness of an expressive writing intervention on reducing employees’ levels of embitterment and ameliorating the negative consequences of it; work-related rumination, work engagement, job satisfaction and sleep quality.

1.4. Theoretical contributions

Theoretically, this thesis aims to contribute to the literature in several ways. Firstly, as the research in embitterment is still in its infancy, findings from this thesis will extend the current research on embitterment by considering specifically the working population. Secondly, this thesis will advance our understanding of the nature of workplace embitterment, exploring predictors, consequences of it, as well as its relationship with other organisational behaviours such as work engagement and job satisfaction. Thirdly, by utilising a longitudinal study, this thesis will extend our understanding of the chronicity of workplace embitterment. Finally, with respect to the limited literature on interventions for embitterment, this thesis adds to the knowledge on person-oriented interventions, specifically considering the impact of an expressive writing intervention on embitterment, work-related rumination, work engagement, job satisfaction and sleep quality.
1.5. Practical contributions

With regards to the practical contributions, this thesis aims to contribute to the development and the assessment of an intervention for embitterment experienced by employees, specifically for the reduction of embitterment and work-related rumination, for the increase of work engagement and job satisfaction, and for the improvement of sleep quality. This could confer considerable benefits for employees’ health and wellbeing, with consequent positive effects on job performance. Also by unfolding the predictors of workplace embitterment, can potentially enable the better understanding of how organisational management should behave and treat their employees in order to prevent embitterment arising. Finally, exploring the consequences embitterment has for employees may enable a deeper understanding of embitterment features (e.g. chronicity, ruminative thinking), which could be used for diagnosing embitterment among employees.

1.6. Thesis outline

Chapter 2 (Part I). Provides a detailed literature review of the existing research on the topic of embitterment. The first area of literature reviewed was that of Posttraumatic Embitterment Disorder (PTED), with main focus on embitterment in the workplace. As PTED was initially introduced by Linden (2003) as a new concept for a subgroup of adjustment disorders, the literature review first adopts a more clinical approach on Posttraumatic Stress Disorder and adjustment disorders. Definitions and diagnostic criteria based on clinical cases are also discussed in order to give the reader an in-depth understanding of what PTED is. As mentioned, embitterment is a new concept in psychology, and many would argue, looking at the clinical cases described by Linden (2003), that embitterment should be regarded as a classification of depressive disorder. Therefore, a comparison between PTED and other mental disorders, especially depression and PTSD is
given in the literature review. By this comparison, it is highlighted and should be clear that although a significant and high degree of comorbidity exists between PTED and depression, as well as PTSD, PTED does differ from other mental disorders. Next, the etiology of PTED is discussed; injustice and violation of basic beliefs. Interventions that have been studied so far focusing on the reconciliation of basic beliefs are then presented; wisdom therapy. The limitations of wisdom therapy and a more detailed discussion on interventions for embitterment is also given in Chapter 5 (study 3). Then a description of how PTED is measured is given. Towards the end of the first section of the literature review (Part I) the focus shifts to address embitterment specifically in the workplace, which is also the main focus of this thesis. Consideration is then given to existing research from the occupational health literature on the relationship between embitterment and bullying, leading then to the concept of organisational justice (the second main construct of this thesis); which is considered as the hallmark feature of embitterment in the workplace.

**Chapter 2 (Part II).** The second part of the literature review presents an introduction to the concept of organisational justice, with emphasis to Colquitt’s (2001) four-dimensional measure; procedural, distributive, interactional, and informational justice. Regardless people’s occupation, the workplace can be a source of events and experiences of humiliation, injustice, and unfairness. These experiences in turn are unavoidably associated with stress, depression, burnout but also embitterment. Surprisingly, the area of embitterment in the workplace is understudied with only two studies\(^3\) being published on embitterment and workplace conflicts, in particular bullying. Findings revealed that workplace bullying was highly correlated with displaying embitterment reactions. Given that workplace bullying is regarded as a form of injustice — due to the fact that the acts that establish bullying are

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\(^3\) As only a limited number of studies have explored embitterment in the workplace (5 studies) a systematic review was not possible to conduct.
unjust and disrespectful — this finding is in line with arguments that the experience of workplace embitterment arises by the perceived failure of organisational justice. Only one study has empirically investigated the relationship between organisational justice and embitterment but focusing only on one aspect of organisational justice; that of procedural justice. Throughout the literature review on organisational justice, it is made clear based on gathered empirical evidence how perceived organisational injustice links to workplace embitterment. Also in addition to organisational justice, this second part of the literature review also covers the concept of over-controlling supervision, which is the third main construct of this thesis. Scholars have considered over-controlling supervision as a form of organisational injustice. However, in the present thesis over-controlling supervision is not treated as a component of organisational injustice but as two discrete variables, due to the fact that over-controlling supervision refers precisely to the relationship between two parties (i.e. employee and supervisor) based on levels of control. Again, the association between over-controlling supervision and workplace embitterment is discussed in the literature review.

Chapter 2 (Part III). In the final part of the literature review the fourth construct of this thesis is presented; that of psychological recovery from work. A discussion and evaluation of existing research regarding work-related rumination and its association with embitterment is covered. Embittered individuals recall the unjust event repeatedly and in this vein embitterment is an emotion that might impair recovery. Linden (2003) supported that having intrusive thoughts is a dominant characteristic of embittered individuals, however little is known about the distinctive characteristics of embittered individuals’ ruminations. As this thesis aimed to explore workplace embitterment, the three-factor conceptualisation of

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4 This study (Sensky et al., 2015) was published after the completion of study 1.
work-related rumination; affective rumination, problem-solving pondering and detachment, was used.

The relevance of Chapter 2 is, firstly to explore the concept of embitterment (Part I), secondly to discuss the potential causes of workplace embitterment with special focus on organisational injustice and over-controlling supervision (Part II), and thirdly to discuss the consequences of workplace embitterment and more specifically that of insufficient recovery from work (Part III). It is important to note that the focus of the present thesis was intentionally wide to encompass an expansive area of research. Due to the limited availability of research specifically addressing embitterment in the workplace, it was necessary to draw on a large number of areas within the field of embitterment to try and address the main aims of the thesis.

**Chapter 3.** Following on from the findings in Chapter 2 suggesting that organisational injustice and over-controlling supervision may be significant predictors of workplace embitterment and that embitterment may be detrimental to recovery from work; this chapter presents the results of a cross-sectional study exploring the predictors and consequences of workplace embitterment. Perceived organisational injustice is undoubtedly a problematic issue in the work environment, which can potentially lead to feelings of embitterment, given that embitterment is triggered by events that are experienced as unjust and unfair. Organisational injustice is also communicated as experiencing unfair treatment by supervisors in the form of over-controlling subordinates’ work (Dupré & Barling, 2006). Therefore, the first aim of Study 1 was to explore significant predictors of the feeling of embitterment in the workplace. The second aim of Study 1 was to explore whether feeling embittered impairs employees’ ability to recover from work. ‘Work-related’ rumination has been conceptualised as a proxy of insufficient recovery (Cropley & Millward Purvis, 2003). Having intrusive thoughts is a dominant characteristic of embittered individuals, as in the case of embitterment intrusive
thoughts act as constant reminders of the insult. However, little is known about the distinctive characteristics of ruminations in embittered individuals. Therefore, Study 1 also aimed to explore the characteristics of ruminations of employees who experience embitterment and whether these ruminations prevent them from psychologically recovering from work. The associations between organisational justice, over-controlling supervision, work related rumination and embitterment, and a number of other control variables were also considered such as job demands, social support in the workplace, and negative affect. Finally, the mediating effect of embitterment on the relationship between organisational injustice and work-related rumination was examined. The cross-sectional study showed that procedural injustice and over-controlling supervision were significant predictors of embitterment and that embitterment contributed significantly to the prediction of increased affective rumination and reduction in detachment. Mediation analysis indicated that embitterment at work was a significant mechanism through which organisational injustice and over-controlling supervision exerted their effect on affective rumination. The main limitation of the cross-sectional design of this study has been highlighted in the chapter and enabled a more robust research design for the next chapter which presents a 6-month longitudinal study.

Chapter 4. The literature review in Chapter 2 also highlighted the importance of exploring the chronicity of embitterment, as so far, no study has empirically investigated whether embitterment in the workplace is stable or whether it diminishes or escalates over time. Therefore, the first aim of this chapter was to investigate the chronicity of workplace embitterment by employing a longitudinal study design. The second aim of this chapter was to build on Chapter 3 and by considering the main limitation of Study 1 (cross-sectional design), to build on the finding that organisational injustice and over-controlling supervision are predictors of workplace embitterment, by employing a longitudinal study design. So far two studies have explored the predictors of embitterment in the workplace; Study 1 (Michailidis &
Cropley, 2016) as well as a study conducted by Sensky et al., (2015), which showed that NHS staff who are embittered perceive their organisation as unsupportive to them, with workers showing low levels of procedural justice. However, a common limitation of both studies is their cross-sectional nature, and hence inferences on the direction of causation of the associations reported are hard to be drawn from the data. This generated the need for a longitudinal study that would enable us to extend these findings and produce more reliable information on the prospective associations between organisational justice and the feeling of workplace embitterment. The final aim of this chapter was to investigate whether embitterment in the workplace leads to reduced levels of self-reported work engagement, as well as reduced levels of job satisfaction. The measure of work engagement was included in Study 2 for two main reasons; previous studies have supported that organisational justice is associated with positive organisational behaviors such as work engagement; and second individuals who insufficiently recover from work also show reduced work engagement. Given that in Study 1 both organisational injustice and work-related rumination were associated with workplace embitterment, the association between work engagement and workplace embitterment was also investigated in Chapter 4. Study 2 draws on the Social Exchange Theory as a theoretical framework to explain the relationship between organisational injustice, workplace embitterment and reduced work engagement.

**Chapter 5.** Chapter 2 showed that there is no agreed treatment for embitterment and Chapter 4 showed that embitterment is not a feeling that goes away on its own, rather feelings of workplace embitterment are stable. Thus, this finding prompts the need for effective interventions that, as with burnout, can either treat/ameliorate embitterment or prevent it from arising. This was also the aim for the final study. Chapter 5 presents results from a randomized controlled trial study design to assess the impact of an expressive writing intervention on workplace embitterment and the negative consequences of experiencing embitterment in the
workplace as revealed in Study 1 and Study 2 (Chapter 3 & 4). These are work related rumination, work engagement, job satisfaction and sleep quality. In the context of workplace embitterment, an inexpensive and easy-to-use employee-centered intervention might be more effective than an organisation-centered intervention, as evidence supports that organisations and managers tend to underestimate the emotional and cognitive toll of injustice on the employee. Employees experiencing unfairness and organisational injustice often deal with this distress alone, as their managers might not realise that a violation has occurred or they might even be unable or unwilling to repair the violation. Therefore, focusing on the employee’s perspective might be more effective in healing the wounds of embitterment.

Chapter 6. The final chapter presents a general overview and discussion of the thesis. This includes a summary of the three studies and their main findings, a discussion of contribution of the research theoretically, practically and methodologically. General limitations are discussed, as well as ideas for future research. Finally, an overall conclusion is presented.
Chapter 2. Literature Review

2.1. Part I – Embitterment

2.1.1. Posttraumatic stress disorder

Negative life events, life-threatening experiences, death of a loved one and in general exposure to frightening and distressful events can result in continuous psychological stress (Amiel-Lebigre, Kovess, Labarte, & Chevalier, 1998; Paykel, 2001; Strain et al., 1998). Psychological international classification systems have encompassed the terms ‘reactive’ or ‘adjustment disorder’, in order to group together disorders caused by such persistent psychological stress (World Health Organisation, 1992; DSM-5, 2013). The *ICD-10 Classification of Mental and Behavioural Disorders* (World Health Organisation, 1992), classifies four disorders as reactive disorders under the heading of ‘Reaction to severe stress and adjustment disorders’: (a) acute adjustment disorders (F 43.0); (b) posttraumatic stress disorder (F 43.1); (c) adjustment disorders (F 43.2); (d) prolonged personality change after extreme stress (F 62.0). In the DSM-5 (American Psychiatric Association [APA], 2013) adjustment disorder is listed under the ‘Trauma- and Stressor-Related Disorders’, along with reactive attachment disorder (313.89), disinhibited social engagement disorder (313.89), posttraumatic stress disorder (309.81), acute stress disorder (308.3) and other specified trauma- and stressor-related disorder (309.89).

A variety of syndromes develop as response to experiencing stressful life events, causing severe impairment in psychological functioning. One of the most well-defined and well-documented disorders is Posttraumatic Stress Disorder (PTSD; O’Brien, 1998). Based on the *Diagnostic and Statistical Manual of Mental Disorders, 5th Edition* (DSM-5; APA, 2013), PTSD is defined by exposure to a traumatic event/events such as death, serious injury, or sexual violence. The individual with PTSD could have experienced directly, witnessed or confronted with the traumatic event. PTSD can be best understood as a special form of
anxiety disorder as it results from an initial anxiety or a panic provoking event (Linden, Rotter, Baumann, & Lieberei, 2007). DSM-5 requires a significant traumatic event as the first diagnostic criterion for PTSD (‘criterion A’) and clearly highlights that the key feature of PTSD is “the development of characteristic symptoms following exposure to one or more traumatic events” (p.274).

The specific symptoms of PTSD can vary from person to person but usually fall within three categories; re-experiencing, avoidance, emotional numbing and hyperarousal. Traumatic experiences place the individual in a position where they repeatedly recall the event and generate intrusive and involuntary thoughts, re-experiencing the unpleasant traumatic event. In their effort to supress the re-experience of the traumatic event, PTSD patients show avoidance behaviour as an attempt to avoid people or places that bring back to their memory the traumatic experience. People with PTSD attempt to supress memories and feelings generated from the event by trying to feel anything at all — a reaction known as emotional numbing. This in turn leads to the individual’s social isolation and withdrawal. Finally, as patients with PTSD find it hard to relax due to their continuous anxiety, they might reach a state of mind known as hyperarousal which results in irritability, outbursts of anger, concentration difficulties, being easily startled, and sleep disturbances (WHO, 1992).

As a reactive disorder, PTSD arises as a response to particular traumatic stressors (World Health Organisation, 1992). However, it is debatably whether symptoms of PTSD arise only in the experience and exposure of a traumatic event or whether it can develop in the absence of a severe life-threatening event. This question has been raised by Bodkin, Pope, Detke, and Hudson (2007) who explored whether it is correct to attribute the PTSD syndrome to trauma or whether the same symptoms profile can occur in the absence of trauma. Bodkin et al., (2007) found that patients entering randomized clinical trials for major depressive disorder, showed symptoms from the B-F criteria of PTSD (symptom clusters B-D, duration
of at least 1 month, and impairment of functioning), regardless of experiencing a traumatic event (criterion A for PTSD; DSM-5, 2013). Moreover, they further found that all patients; those who had and those who had not have a trauma history, showed almost identical symptom clusters. In the same vein, other studies have revealed that symptoms of PTSD can be present without the experience of a traumatic event. Such experiences could be money issues (Scott & Stradling, 1994), and divorce (Helzer, Robins, & McEvoy, 1987). Finally, Gold, Marx, Soler-Baillo, and Sloan (2005), showed that PTSD patients who had not experienced a traumatic event were more prone to meet other diagnostic criteria for PTSD than those who had experienced a traumatic event. Therefore, the aforementioned findings raise the question on whether the symptoms of PTSD are essentially caused by trauma.

2.1.2. Adjustment disorders (AD)

There are other types of events in life that are not necessarily traumatic and life-threatening, and still can cause psychological turmoil. These are summarized as ‘adjustment disorders’. DSM-5 conceptualizes adjustment disorders as a stress response syndrome, which represents a simple response to some type of life stress (traumatic or not) and lasts no longer than 6 months after the stressor or its consequences have ceased. There is the possibility to differentiate between predominately depressed mood, anxiety, mixed anxiety and depressive mood, disturbance of conduct, and disturbance of emotions and conduct. Similarly, the ICD-10 defines adjustment disorders as “states of subjective distress and emotional disturbance, usually interfering with social functioning and performance and arising in the period of adaptation to a significant life change or to the consequences of a stressful life event” (p. 121). Thus, unlike PTSD, which requires a traumatic stressor as the causing event, AD can be preceded by non-traumatic events (Strain & Friedman, 2011). Such events can be a divorce, loss of job, death of a beloved one, serious illness.
Maercker, Einsle, and Kollner (2007) proposed that patients with adjustment disorders share common symptoms as a way of reacting to a critical-life event. These symptoms are clustered into three categories; intrusions, avoidance, failure to adapt. Intrusions refer to the recurrent unintentional and distressing memories of the related critical event. Avoidance refers to the behavior style that patients hold as an attempt to distance from these distressing memories. Finally, failure to adapt includes those symptoms interfering with everyday functioning such as sleep disturbances and difficulties in concentrating.

Many scholars have argued that this category of adjustment disorders includes a broad range of psychopathological symptoms, as well as vague diagnostic criteria, thus leaving it a category with an unclear, ill profile (Linden, 2003; Dobricki & Maercker, 2010; Strain & Diefenbacher, 2008; Baumeister, Maercker, & Casey, 2009). Specifically, Dobricki and Maercker (2010), discussed that given this broad definition of adjustment disorders it is likely to consider any psychopathological symptom as part of a syndrome that represents adjustment disorders, given of course that no other criteria of another ICD disorder are met.

As mentioned, ICD-10 describes adjustment disorders as lasting up to 6 months. However, Linden (2003) supported that enduring reactions to life events, that might last more than 6 months and tend to become chronic and even increase with longer distance from the critical event, must be classified as other Axis I disorders than adjustment disorders.

Linden (2003) therefore argued that adjustment disorders need further sub-classification. This was mainly based on Linden’s observations of people experiencing the wake of the German reunification. The reunification of Germany confronted citizens in East and West Germany causing significant changes in their lives, such as unemployment, changes and insecurity in housing, changing habits and loss of personal identity. Such changes can be considered as critical life events (Achberger, Linden, & Benkert, 1999). It seems reasonable therefore that East German population who had to go through all these stressors and adapt to
the changes caused after the unification, would show a higher prevalence of psychological
disorders such as PTSD and AD as compared to the West German population. However, this
is not the case, as revealed by Achberger et al., (1999) and Hillen, Schaub, Hiestermann,
Kirschner, and Robra, (2000), the East and West population of Germany did not have any
significant differences in the rate of mental disorders after the fall of the Berlin Wall.

Still, up till now Germans who had experienced the reunification continue to show
serious psychological reactions to critical negative life changes, which following the DSM-5
and ICD-10 diagnostic criteria cannot be diagnosed as PTSD, AD nor depressive disorders
(Linden, 2003). Rather, different and characteristic psychopathological features describe
these patients. This statement was supported following a case vignette by Linden (2003) on a
55-year old social worker who was made redundant from his job that he had been working at
for several years. After he had invested so much in the foster home he was working at and he
was well recognized and respected from his colleagues and children in the foster home. With
the change of the system of the German Democratic Republic (GDR) he believed that better
days would come for him and the foster home. So, he personally directed the home through
the chaos caused by the reunification and ensured that the home would remain open.

However, the foster home was taken over by a Western’ church affiliation and as he was one
of the older workers he was made redundant. This unexpected, unjust, unfair and hurtful
experience led to an emotional reaction described by symptoms such as negative mood, self-
directed blame, hopelessness, avoidance, and several unclear somatic complaints, e.g. sleep
disturbance, loss of libido, lack of appetite and drive, and neglect his appearance.

Importantly, as opposed to depression, he showed unimpaired modulation of affect when he
was distracted from the memory of this event and engaged in ideas of revenge, e.g. reunified
Germany would lose its economic power, he completely changed his emotional status and
smiled. Linden (2003) has supported that all these symptoms and features caused from such
event lead to the development of a persistent disorder termed as “Posttraumatic Embitterment Disorder” (PTED).

2.1.3. Definitions of PTED

Embitterment is a reaction that is far more destructive than anxiety or depression, and is experienced by virtually everyone, but yet not until recently has it been defined only in terms of a disorder, as few scientists have addressed this condition. Embitterment is the emotion of feeling constantly disappointed, insulted or being a loser, and at the same time having a desire for revenge while rejecting help (Linden, 2003). In many cases embitterment cannot be reduced via self-regulation, and can continue persistently (Linden, 2003). Post-traumatic embitterment disorder was initially defined by the German psychiatrists Michael Linden (2003) as the mental reaction to critical yet common but not every day, negative life events that are mainly experienced as unjust, personal humiliating or hurtful and can result in persistent psychological stress. Such events are considered as being exceptional and examples would be conflict at work, unemployment, divorce, severe illness, the death of a relative, experience of loss or separation, and are common in the sense that they are experienced by everybody at some point in their life.

The development and description of PTED was mainly based on clinical and theoretical considerations by Linden (2003), as psychiatrists and clinicians frequently come across such patients and are unable to sufficiently classify them. A further reason that speaks for the sub-classification of adjustment disorders is the broadly use of the term ‘PTSD’ for other reactive disorders without a life-threatening or anxiety provoking event (Linden, Baumann, Rotter, & Schippan, 2008). Because of the peculiarities of this mental reaction and its distinctiveness from adjustment and PTSD it has been described as a distinct subgroup of
adjustment disorders with its own etiology and psychopathological characteristics (Linden, 2003; Linden et al, 2008).

2.1.4. Diagnostic criteria of PTED (Table 2.1; Linden, 2003)

Based on theoretical considerations and clinical experiences, Linden (2003) described the common features of PTED and outlined the core diagnostic criteria. To begin with, PTED is triggered not by an anxiety-provoking or life-threatening event, but from a single exceptional negative life event. By the term exceptional Linden (2003) means a ‘normal’ but not everyday event. Linden et al., (2007) examined what sort of events can lead to embitterment and revealed that such events can happen in every life domain. Examples of such critical life events were in 72.9% work related, in 12.5% related to family or partnership, in 8.3% it was the death of a relative or friend, and 6.3% an illness. However, the characteristic feature of such life events is not that they are exceptional but rather that they are perceived and experienced as ‘unjust, personal insult and psychologically as a violation of basic beliefs and values’ (Linden et al., 2007), and the individual sees him or herself as victims. Thus, the person perceives this critical, unjust event as the direct cause of their present negative state. A key diagnostic criterion for PTED is that the present negative state of the patient is no recurrence of a pre-existing mental disorder (Linden, 2003). Therefore, a clear link between the critical event and the resulting psychopathology of PTED is required for its diagnosis.

Linden et al., (2008) examined the psychopathological and emotional signs and symptoms of 48 patients who were diagnosed with PTED based on the clinical judgment and impression in reference to the criteria as outlined in Table 2.1. The psychopathological signs and symptoms that were found based on patients’ responses on the standardised diagnostic interview for PTED (Linden et al., 2007) revealed that as with PTSD all patients with PTED
were suffering from intrusive thoughts and memories about the critical event. Further psychopathological symptoms that Linden et al., (2007) revealed were negative mood, restlessness since the event, avoidance of places and people that elicited memories of the event, general resignation since the event with no meaning in further effort. Like melancholic depression, PTED patients showed early awakening and complained about loss of interest and positive affect. However, in contrast to depression, PTED patients showed normal affect and unimpaired affect modulation when distracted or engaged in revenge fantasies.

Regarding the emotional reactions related to the memory of the critical event, Linden et al., (2007) revealed that all patients had feelings of injustice and that the predominant emotion experienced by PTED patients is **embitterment**. Other emotions generated when thinking of the critical event include rage, helplessness and anger. There are also feelings of revenge towards the person who is responsible for their present negative state. This could be their manager, their colleague, or even fate or God. PTED patients can within minutes go from total depressive mood to happiness and smiles, just with the thought that they can take revenge. Occasionally patients with thoughts of revenge might feel ashamed especially when they think of aggressive ways for revenge, and will deny them. However, if coincidentally something bad happened to the aggressor they would not feel sorry for him/her (Linden, 2003).
Table 2.1

Research diagnostic criteria for PTED - Adapted from Linden (2003)

<table>
<thead>
<tr>
<th>A. Core criteria</th>
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<tbody>
<tr>
<td>1. A single exceptional negative life event precipitates the onset of the illness.</td>
</tr>
<tr>
<td>2. Patients know about this life event and see their present negative state as a direct and lasting consequence of this event.</td>
</tr>
<tr>
<td>3. Patients experience the negative life event as “unjust” and respond with embitterment and emotional arousal when reminded of the event.</td>
</tr>
<tr>
<td>4. No obvious mental disorder in the year before the critical event. The present state is no recurrence of a preexisting mental disorder.</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>B. Additional signs and symptoms</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Patients see themselves as victims and as helpless/unable to cope with the event or the cause.</td>
</tr>
<tr>
<td>2. Patients blame themselves for the event, for not having prevented it, or for not being able to cope with it.</td>
</tr>
<tr>
<td>3. Patients report repeated intrusive memories of the critical event. They partly even think that it is important not to forget.</td>
</tr>
<tr>
<td>4. Patients express thoughts that it does not longer matter how they are doing and are even uncertain whether they want the wounds to heal.</td>
</tr>
<tr>
<td>5. Patients can express suicidal ideation.</td>
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<tr>
<td>6. Additional emotions are dysphoria, aggression, down-heartedness, which can resemble melancholic depressive states with somatic syndromes.</td>
</tr>
<tr>
<td>7. Patients show a variety of unspecific somatic complaints such as loss of appetite, sleep disturbance, pain.</td>
</tr>
<tr>
<td>8. Patients can report phobic symptoms in respect to the place or to persons related to the event.</td>
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<tr>
<td>9. Drive is reduced and blocked. Patients experiencing themselves not so much as drive inhibited but rather as drive unwilling.</td>
</tr>
<tr>
<td>10. Emotional modulation is not impaired and patients can show normal affect when they are distracted or even smile when engaged in thoughts of revenge.</td>
</tr>
</tbody>
</table>

| C. Duration: Symptoms last for longer than 3 months. |

| D. Impairment: Performance in daily activities and roles is impaired. |
Therefore, a key point that follows the aforementioned diagnostic criteria and impressive psychopathological properties, is that PTED is a disorder and patients should be considered as ill. However, as with any other mental disorder such as depression or anxiety, PTED must be assumed as a ‘dimensional phenomenon’, where ‘dimension’ refers to a continuum on which an individual can have various levels of features. So, it is not the event itself that defines PTED, but the psychopathological reaction to it (Linden, 2003). For instance, someone having a conflict with a colleague at work does not mean that he/she is ill. But when the feeling of embitterment is sustained after such event and this individual reaches great intensities and symptoms such as repetitive intrusive thoughts, negative mood, avoidance of places and persons, sleep disturbances etc. that is when embitterment can be defined as an illness — termed PTED and discriminates from other mental disorders. Linden, Baumann, Lieberei, Lorenz, and Rotter, (2011) further argued that PTED should be considered a new psychiatric diagnosis, which for the moment can be classified according to ICD-10 in the category F 43.8 (Other reactions to severe stress). However, as research on embitterment is still on its infancy, it is still early to be definite on classifying PTED in psychological international classification systems.

2.1.5. PTED in comparison to other mental disorders

Linden et al., (2008) conducted a study comparing 50 clinically defined PTED patients with 50 patients suffering from other mental disorders on measures of posttraumatic stress and psychopathological distress, as an attempt to investigate whether the concept of PTED captures a distinct group of mental disorders. Psychiatric diagnoses were assessed using the Mini International Neuropsychiatric Interview (MINI; Sheehan et al., 1998). Self-report measures included the Symptom Checklist-90-Revision (SCL-90-R; Franke, 1995), which was used to assess the intensity and quality of psychopathological symptoms; the Bern
Embitterment Questionnaire (Znoj, 2008) which was initially developed within the context of care for cancer patients and includes 20 self-rating-items on a 5-point scale that measure embitterment. Seventeen items of this scale measure characteristic features of embitterment (e.g. “Sometimes I am fraught with bitterness when I think about my unfulfilled goals”) and three items are statements that are thought to be characteristic of non-embitterment (e.g. “I look forward to my future”). Self-reports measures also included the PTED Self-Rating Scale (PTED scale see section 2.1.9; Linden, Baumann, Lieberei, & Rotter, 2009) which asks for prolonged and disabling embitterment reactions in the aftermath of negative life events. Finally, patients were also given the Impact of Event Scale (IES-R; Maercker & Schützwohl, 1998), which is a well-established measure of stress reaction after a traumatic event. Results from the MINI psychiatric diagnoses indicated that although all patients (PTED and patients suffering from other mental disorders) met the diagnostic criteria for many disorders, with a significantly higher rate of acute major depression (50%) and chronic adjustment disorder (66%), yet the PTED patients showed a less occurrence of generalized anxiety disorders (4%). With regards to the self-reports, significant differences were found between PTED and non-PTED patients, with PTED patients showing significantly and clearly higher scores on SCL-90-R self-rating, as well as on all 3 assessment instruments of posttraumatic stress: the Bern Embitterment Questionnaire, the IES-R and the PTED scale. These findings indicate that there are clear differences between PTED and non-PTED patients regarding the quality and intensity of psychopathological as well as posttraumatic stress symptoms. Linden et al., (2008) therefore supported that the finding that PTED patients can be discriminated from patients with other mental disorders, underlies the reactive nature of PTED and that it must be considered as a ‘severe type of illness’.

Given the significant and high degree of comorbidity between PTED and depression found in Linden’s et al., (2008) study, one could imply that PTED should be regarded as a
classification of depressive disorder. In addition to this, when examining the psychopathology of PTED, Linden et al., (2008) found that 52.1% of PTED patients fulfilled the criteria of major depression and that 97.9% reported persistent negative mood, which according to DSM-5 is the Criterion A for Major Depressive Disorder (APA, 2013). Given the aforementioned, one could assume that PTED patients are suffering from depression rather than PTED.

This is not the case however, as other significant differences between PTED and depression occur. To begin with, although negative life events are present in the history of patients with depression (Kendler, Karkowski, & Prescott, 1999), the event is not a prerequisite for diagnosing depression. Rather, the association between the negative life event and depressive symptoms appears to be more complex as it echoes a reciprocal relationship in which recent events alter risks for depression and earlier depressive symptoms in turn predict later negative events, possible due to the patient’s attempts to change unfavorable social circumstances (Patton, Coffey, Posterino, Carlin, & Bowes, 2003). In contrast, in PTED, there must be a negative event and the symptomatology found in PTED, including aggressive tendencies, intrusive thoughts, and anger, can only be explained and understood in connection to this event (Linden, 2003).

Negative life events can lead to depressive rumination, which is defined as a repetitive pattern of thoughts and behaviours that focus on an individual’s attention on his/her negative state (Donaldson & Lam, 2004). Rumination has been identified as a vulnerability factor for depression (Nolen-Hoeksema, 2000). The focus of ruminations in depressive individuals is mainly on their symptoms of the disorder (‘I find it hard to go to sleep’) and worrying about the meaning of their negative state (‘Will I ever get over this?; Lyubomirsky, Caldwell, & Nolen-Hoeksema, 1998; Nolen-Hoeksema, 2000). Rumination can also embrace feelings of

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5 For a literature review on rumination see Chapter 2 part iii
anger (Ray, Wilhelm, & Gross, 2008). In turn, depression and anger are associated with PTED (Linden et al., 2008) and as Linden (2003) supported intrusive thoughts are key in the diagnosis of PTED, and are similar to the rumination occurring in PTSD. Ruminations occurring in PTED however, focus on the ‘event or circumstances’ giving rise to the embitterment and not ‘on the symptoms’ caused by this event, contrast to depressive ruminations (Sensky, 2010). Linden’s (2003) patients diagnosed with PTED viewed their rumination as something good and worthy, as they believe that holding on to the memory of the cause of their negative state (embitterment) is important for them, as in this way they could remember the causes of their embitterment and the world could see how unfairly they have been treated. Still, this is similar for some patients with depression, anxiety and anger, who consider rumination as benefiting them (Papageorgiou & Wells, 2001; Simpson & Papageorgiou, 2004). However, there is a need to investigate further the exact relationship between embitterment and rumination in order to have a more integrated and holistic view of what distinctive features ruminations occurring in embitterment have, as what we know so far has only been based on clinical observations from Linden’s patients (see Chapter 3).

Dorbicki and Maercker (2010) argued that what should enable the differentiation between depression and PTED are the core characteristics of PTED that are not either way present in other mental disorders such as depression. For example, intrusions are in clear contrast to the core of depressive disorders and stand as the main symptom of PTED. Therefore, if PTED is to constitute a disorder on its own, its core symptoms must be unique and not common to another mental disorder category.

When comparing PTED with other mental disorders, Linden et al., (2008) revealed similarities between PTED and PTSD. Both are reactive in nature and have similar characteristic symptoms such as intrusive thoughts and repetitive memories. A main difference however is that in PTED, individuals perceive their emotions as both hurting and
rewarding sometimes and even become addicted to the memories of the trigger event. Therefore, PTSD is defined not solely by the traumatic event e.g. rape, but by the psychological process (unconditioned panic reaction) and by the symptom characteristics (intrusions, anxiety). In the same vein, PTED is defined by the psychological process (violation of basic beliefs) and by the specific pattern of symptoms (embitterment, intrusive thoughts, social withdrawal etc.) and not by the critical event e.g. unemployment. Most importantly, the predominant emotion in PTSD and PTED differ; anxiety and embitterment respectively (Linden, 2003).

2.1.6. Etiology of PTED

“Mentioning his work resulted in immediate outburst of dysphonic and aggressive emotions...He called himself a failure, someone who could not even feed his family, a cripple who should best be killed.”

55-year-old man Case Vignette for PTED (Linden, 2003)

Based on Linden’s observations from people experiencing embitterment, embitterment along with anger has the additional quality of self-blame. Explanation of why embittered people react in such a way to critical life events can be found in cognitive theories (Linden, 2003). The concept of self-blame encompasses an individual’s failure to recognize their own humanity, as it strengthens their perceived inadequacies—real or imaginary—resulting thus to inability to move forward in life (Davis, Lehman, Silver, Wortman, & Ellard, 1996). But why do embittered individuals show self-blame? As highlighted by Linden (2003) embitterment is an emotion that involves feelings of being revengeful. This perceived feeling of injustice as the aftermath of embitterment (Pirhacova, 1997) makes PTED patients to seek revenge in order to find justice. However, if they perceive that revenge is unreachable, aggression can be turned against the self, and self-blame might become an
outstanding psychopathological feature (Janoff-Bulman, 1979). Therefore, embittered individuals might blame themselves for not having prevented the critical injustice event or for not being strong enough to avoid it. Having the desire to fight back but the inability to find the proper goal, embittered individuals often degrade themselves and constantly recall the insulting event so that they do not ‘forget’ it, and the world can see how badly they have been treated (Linden, 2003).

Given the context within which embitterment develops; it is triggered by an exceptional negative life event such as unemployment, conflict in the workplace, death of relative or divorce, Linden et al., (2007) supported that the feeling of injustice and embitterment can be seen as the aftermath of a more specific model, which stipulates a violation of strong basic beliefs and values (Beck, Rush, Shaw, & Emery, 1979). Insults and disparagement can have a negative effect on certain life domains that are of special importance to the person (Linden, 2008). In order to achieve in certain areas in life, one has to set and reach that specific goal. An example would be a student, for whom finding a proper job within his/her field is the most important thing in life, who has sacrificed hours of studying and reading, who has sacrificed his/her free time to invest more in his/her academic achievements in order to find a job, and who still one year after graduating has received many rejections and still has not found a job. This results in a violation of the student’s basic belief and value, in this case the value of academically achieving in order to find a job. The student therefore wonders and thinks that all that he/she has invested was ‘waste of time’.

Basic beliefs can be conceptualized as value systems of what is important to each individual. These values and beliefs might differ from person to person and might encompass from religious or political beliefs to basic definitions of oneself and one’s personal goal in life (Beck et al., 1979). According to Erikson (1968) these basic beliefs are developed and learned in childhood and become part of our identity, as they encompass abstract beliefs.
about ourselves, the world, and the interaction between the two. Therefore, these basic beliefs
and values serve as guides that enable individuals to behave in a coherent way throughout
their life span, making these beliefs thus resilient to change, even when challenged with
differing evidence (Linden, 2003).

According to Janoff-Bulman (1992), people tend to hold three major basic beliefs: a) the world is benevolent, b) people most of the times get what they deserve and by engaging in appropriate behaviours people control positive and negative outcomes, and finally c) people tend to hold positive self-beliefs. These basic beliefs manifest themselves with the assumption that the world is meaningful, predictive, nonrandom and thus a safe and secure place to live in. People hold the belief that since they have control over their action, good things happen to good people because of who they are or what they do. However, when people experience a critical negative life event, these core beliefs are often “shattered” (Janoff-Bulman, 1992), and the world is no longer perceived as a safe place to live, rather it is viewed as an unpredictable place where bad things can befall good people as well. Thus, when the legitimacy of an individual’s basic belief is challenged by a stressor, the individual has to rebuild and adjust basic beliefs in light of it (Creamer, Burgess, & Pattison, 1992; Janoff-Bulman, 1992). Still, these basic beliefs should not be taken for granted, as people differ in terms of how life has treated them and what they have experienced might change these basic beliefs.

Linden (2003) argued that the reaction evident in PTED can be explained in terms of a mismatch between basic beliefs and the critical event. As opposed to Janoff-Bulman (1992), Linden (2003) suggested that a negative life event in PTED does not ‘shatter’ basic beliefs, rather the negative event violates them. Thus, basic beliefs remain intact in PTED (Linden, 2003). Whereas in PTSD the negative event stands for a shatter of basic beliefs, which subsequently leads to the predominant emotional experience of fear and anxiety.
(Janoff-Bulman, 1992), in PTED the predominant emotion is embitterment which results from the disconfirmation of basic beliefs and values caused by the negative life event (Linden, 2003). Because PTED patients strictly hold on to their basic beliefs and with the experience of the critical event, they try to adhere to these, leading therefore to their prolonged emotional reaction. Although the critical and exceptional life event that PTED patients experience is regarded as a threat to their fundamental assumptions, at the same time they are so dominant to discount.

2.1.7. Interventions for PTED

Embittered individuals are characterized by feelings of hopelessness, fatalistic attitudes, rejection of help, and an aggressive outward-turned expectation that the world must change and not the individual. As already discussed, the prevalence of embitterment can be explained by the violation of basic beliefs, thus any therapeutic intervention must focus on the reconciliation of basic beliefs (Linden, 2003). Although embittered individuals tend to be treatment-resistant (Linden, 2008), according to Linden (2008) any attempt to treat embitterment must aim at abridging symptoms by teaching basic problem-solving skills rather than solving the problem per se. That is, the treatment should target for teaching basic knowledge and skills about solving the problem and not to provide solutions to the patients (Lieberei & Linden, 2011). Given the change-resistant nature of peoples’ basic beliefs, treatment must aim at providing embittered individuals with the skills to modify their basic beliefs and attitudes and overcome the fatalistic attitudes that govern them and prevent them from developing a new life-perspective or new perspectives on what has happened.

In this vein, Linden (2008), suggested that ‘wisdom therapy’ can be used as a treatment approach for those with PTED. Wisdom has been described as “expert knowledge

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6 See Chapter 5 for a review on expressive writing intervention.
in the fundamental pragmatics of life” (Baltes & Staudinger, 2000) and as a knowledge system that enables individuals to demonstrate specific patterns of understanding and dealing with complex and critical life events. In this regard, wisdom as expertise about fundamental aspects of life such as uncertainty and chance can facilitate adjustment if our basic beliefs mismatch reality. Wise people are considered to deal effectively with any obstacle or crisis they are confronted with in their life (Ardelt, 2000; Ardelt, 2005). Ardelt (2005) conducted an explanatory qualitative study in order to explore how wise people cope successfully with crisis and obstacles in life. This was achieved by analyzing the stated coping strategies from respondents who had scored relatively high wisdom scores on the three-dimensional wisdom scale (3D-WS; Ardelt, 2003). Three higher-order coping strategies were identified and summarized as mental distancing, active coping and application of life lessons. Relatively wise individuals hinder a crisis to overpower them as they initially take a step back and look at the problem objectively and think about it from an emotional distance (mental distancing). Additionally, they use reframing to mentally redefine the problem as an interesting challenge that can be mastered, rather than unpleasant, and thus they can more easily take control of the situation both mentally and physically (active coping). Finally, relatively wise individuals do not get devastated by the event because they are able to learn from it, resulting thus in a greater insight and wisdom. By learning and accepting that life might sometimes be unpredictable and uncertain, one is better prepared to face possible future obstacles (application of life lessons).

Linden et al. (2007) argued that embittered individuals are wisdom-related performance deficient when they are confronted with ambiguous and difficult life situations. However, these deficiencies can be significantly reduced by specific training on wisdom competencies (Linden, 2008). Referring to the theoretical concepts of wisdom (Ardelt, 2005; Baltes & Staudinger, 2000), Linden et al. (2007) developed a set of nine dimensions to
assess wisdom-related expertise: ‘factual knowledge’, ‘change perspective’, ‘empathy’, ‘perception and acceptance of emotions’, ‘emotional serenity’, ‘contextualism’, ‘value relativism’, ‘long term perspective’, and ‘uncertainty acceptance’. Wisdom-related expertise is assessed by presenting participants a description of a severe negative life event that can be characterized as unjust, and ask them to reflect out aloud on the problem. Then participants are asked to rate on each of the nine dimensions e.g. “To what extent does this performance show that one’s own emotions are recognized and accepted? (‘perception and acceptance of emotions’ dimension) using a global-judgment on a five-point ranging scale from “not at all” to “very much”’. Linden et al., (2008) revealed that indeed PTED patients did have significantly lower scores on most of the wisdom competencies dimensions. However, this data on its own does not necessarily suggest that lack of wisdom competencies leads to the development of PTED or that negative life events interfere with wisdom and by this impair problem solving. But this might suggest that wisdom-knowledge might be the foundation of a possible therapeutic intervention.

**Wisdom psychotherapy in embitterment disorder**

Based on these ‘wisdom competencies’ and the idea that wisdom can be taught and learned, Linden, Schippan, and Baumann, (2004) developed “wisdom psychotherapy” as a new treatment approach specially designed for PTED and patients with adjustment disorders. It is embedded in and conceptualized as part of cognitive behavior therapy. The fundamental idea behind wisdom psychotherapy is the stimulation of wisdom competencies, along with established cognitive treatment strategies.

As with any other therapy, the first crucial and often challenging therapeutic task is the development of a therapeutic relationship between the embittered individual and the therapist. The therapist has to be perceived by the embittered individual as a person who can
help find justice and thus being on his/her side. For this to happen, empathy and unconditional acceptance is needed by the therapist. Then the individual is asked to reprocess and analyze the experienced injustice, by addressing especially the questions of what caused the feelings of injustice and what were the basic beliefs and values that were violated. Attention must be paid on patients’ avoidance behavior e.g. avoid areas that remind them of the injustice event, as they experience avoidance as a ‘typical reaction’ because of what happened and not as a symptom. Empathy and sympathy can foster the patient’s treatment motivation, as it is possible to communicate that he/she does not deserve this present negative mental status, that he has already suffered enough and that it is finally time to move forward.

The therapy then progresses in activating and enhancing wisdom-related knowledge and strategies based on the ‘wisdom competencies’ proposed by Linden et al. (2007) by using therapeutic techniques such as discussing, questioning, looking emotions from another perspective, evaluating etc. Such competencies are ‘factual knowledge and procedural knowledge’ about what can be done and what not, ‘change perspective’ and ‘empathy’ in order to understand what made the other people act as they did, ‘perception and acceptance of emotions’ and ‘emotional serenity’, which help to keep a clear mind and not be overwhelmed by one’s own emotions, ‘contextualism’, ‘value relativism’, and ‘long term perspective’, which put the negative event in a broader context of meaning and life development, ‘uncertainty acceptance’ and ‘powerlessness’, which allows the individual to act without knowing for sure the outcome, ‘distance from oneself’ and ‘reduction of the level of aspiration’, which enables the individual to step back and accept that life does not always follow one’s wishes and goals.

A further method used in wisdom therapy is the method of ‘unsolvable problems’ (Linden et al., 2011), which aims at delivering wisdom-related strategies to the embittered individual. The embittered individual is presented with a description of a fictitious severe
negative life event involving a victim, an offender, and usually some third party and can be characterized as unjust and with no clear solution. As the problem is unrelated to the individual’s problem, he/she is asked to imagine him/herself as a victim, offender or the third party and how he/she would feel and act in each case respectively. Therefore, strategies that can enable coping with life crises are developed for example by looking at the problem from different perspectives, by developing empathy for the counterpart, by integrating contradicting cognitive and emotional aspects into the solution. Example of a possible question that the patient can be asked related to the fictitious problem could be “Please put yourself into the place of the aggrieved person. What would you think? What would you do?”. Importantly there is no right or wrong answer to the solution of the problem. Rather a more or less functional or dysfunctional coping solution is identified by the individual which in turn could either activate or not a reorientation and development of new perspectives.

The significant therapeutic benefits wisdom therapy might have on PTED patients have been examined by Linden et al., (2011) who conducted a pilot study by comparing the effectiveness of routine multidimensional cognitive behavior therapy, PTED-specific cognitive behavior therapy, which is based on wisdom therapy and finally with cognitive behavioural therapy based on wisdom psychology along with hedonia strategies. Hedonia refers to a type of philosophy for that the pleasure and positive affect is an ultimate importance and the most important pursuit of man (Deci & Ryan, 2008). Therefore, hedonia strategies aim at creating in the embittered individual’s mind the notion that ‘well-being’ is a form of revenge. As embittered individuals tend to be locked up in thoughts about what has happened and tend to disregard all other areas of life, hedonia strategies can help the individual distract from these intrusive thoughts, care about themselves and look for the good things in life. The general rules of hedonia that are taught to individuals are: allow yourself to be good to yourself, take your time, take caring for yourself seriously, focus on the little
things, less is better than more, one must learn to be good to oneself, being good to oneself is a daily routine (Linden et al., 2011).

The treatment integrity was measured with special treatment modes of the Behaviour Therapy Competency Checklist. The outcomes were measured in all 3 groups with the SCL-90 and a global clinical rating of patients and therapists on treatment outcome. Findings revealed that indeed wisdom therapy lead to a meaningful decrease in the SCL score compared to the routine treatment. Regarding the clinical ratings by both patients and therapists, both wisdom and wisdom with hedonia therapies were judged as being more effective than the usual treatment. Therefore, Linden et al. (2011) did provide significant and clinical meaningful support for the beneficial use of wisdom therapy as a PTED treating intervention. However, no additional therapeutic benefits were found when hedonia and wisdom strategies were applied together.

Despite wisdom therapy that Linden et al. (2011) introduced and supported, it would be interesting to examine other treatment approaches which could be used for PTED treatment. Possible interventions that can benefit embitterment are still understudied and further research could provide a clearer idea on which interventions are most effective.7

2.1.8. Personality correlates to embitterment

Given the behavioural manifestations of embitterment and especially the blend of emotions and cognitions it involves, such as injustice, intrusive memories, hopelessness and hostility, understanding the personality characteristics that underlie it, is of particular interest. The Big Five model of personality (Costa & McCrae, 1985; Costa & McCrae, 1992) discriminates five personality dimensions: neuroticism (tendency to experience emotional instability, anxiety, moodiness, irritability and sadness), extraversion (tendency to manifest

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7 See Chapter 5 for expressive writing intervention
excitability, sociability, talkativeness, and high amount of social expressiveness),
conscientiousness (tendency to show thoughtfulness, with good impulse control and goal-
directed behavior), agreeableness (tendency to manifest prosocial behaviours and value
getting along with others), and openness to experience (tendency to have imagination and
insight and be intellectually curious). Previous research has shown that embitterment is
correlated with low agreeableness and high neuroticism (Dodek & Barnow, 2011). In terms
of the Big Five personality traits, individuals with high neuroticism are emotionally more
reactive in experiencing negative events and have a lower threshold to experiencing negative
affect, pay more attention to negative stimuli, they show low self-confidence when it comes
to coping with stressors and finally they are more prone to engage in irrational thoughts.
Therefore, it makes sense that highly neurotic individuals are more likely to experience
embitterment (Dodek & Barnow, 2011). On the other hand, agreeableness is conceptualized
as a constellation of emotional competencies including empathy, trust, altruism, kindness,
affection and long-term perspective. Therefore, an individual characterized by low
agreeableness is more likely to experience embitterment (Dodek & Barnow, 2011), because
of his/her lack of trust and empathy towards others he/she might be more suspicious when it
comes to justice matters.

In order to further the understanding of how embitterment associates with personality,
Blom (2014) examined whether the combination of both high neuroticism and low
agreeableness is associated with the experience of embitterment. Thus, he tested the
hypothesis of whether individuals with high neuroticism who lack agreeableness experience
higher embitterment by using the Bern Embitterment inventory and the Big Five Inventory
(BFI-NL). The hypothesis was supported and findings revealed that indeed the co-occurrence
of high neuroticism and low agreeableness was associated with embitterment. As put forward
by others (Ode, Robinson, & Wilkowski, 2008), this might reflect the important role agreeableness has in the self-regulation of negative affect found in neurotic individuals.

2.1.9. How is PTED measured?

As embitterment is a natural emotional reaction to an unjust event it only becomes pathological when it reaches excessive intensities (Linden, 2003). Therefore, it must be understood as a dimensional phenomenon that can be quantified on an instrument. Linden et al., (2009) developed the PTED Self-Rating Scale (PTED Scale; Appendix B) as an attempt to measure symptom severity in cases of PTED but which can also serve as a screening instrument. The PTED Scale consists of 19-item questions that were developed by summarizing and translating the characteristic features of PTED as defined by Linden (2003) into self-rating questions. Participants are asked to read the statements and indicate on a 5-point Likert scale (0 = not at all, to 4 = extremely true) the extent to which each statement applies to them. In order to capture the explicit relationship between the critical life event and the psychological response, which is characteristic for PTED, at the beginning of each sentence is the line: “During the last years there was a severe and negative life event...,” and is then followed by individual statements such as “…that triggers me to harbour thoughts of revenge.”

In order to test the prevalence of embitterment, the PTED scale was initially administrated to four independent groups of participants: a) patients diagnosed as suffering from prolonged and disabling embitterment while fulfilling the diagnostic criteria for PTED as coined by Linden (2003) and were matched with control patients who were treated as inpatients due to other mental disorders, b) unselected inpatients who suffered from all kinds of chronic mental disorders, c) patients in general practice who were seeing a general physician, d) train sample (general population).

Reliability of the scale was measured by examining the internal consistency and test-
retest reliability of the unselected inpatients sample. A high internal consistency was found with an alpha coefficient of .93. A good test-retest reliability (time interval of 6-8 days) was also revealed with a Spearman Rho total correlation of .71.

A principal component analyses was conducted on all PTED scale items using data of the unselected inpatients sample. Two factors emerged, accounting for the 55.25% of the total variance; Factor 1 was defined by items that ask for the psychological status and social functioning (items: 2,4,5,8-12,14-19), whereas Factor 2 was defined by items that ask for emotional responses to the event and for thoughts of revenge (items: 1,3,6,7,13). The extraction of these two factors encompasses the two principal dimensions of psychopathology in PTED: the pathological emotional reaction following a negative life event and the subsequent impairment of mental state and social functioning (Linden et al., 2007). Linden et al., (2009) however, supported that it is more appropriate to use a total score of the PTED scale in order to evaluate the severity of reactive embitterment and PTED symptomatology.

The validity of the scale was assessed by means of discriminant analysis between the PTED sample and its matched control patient group. Findings indicated that indeed PTED patients’ PTED self-report responses were significantly higher than the control group responses, with a mean total of 2.64 ($SD = .93$). A chi-square transformation of Wilk’s Lambda was used in order to test whether the compute discriminant function between the two groups discriminated significantly—and this was the case ($\chi^2 = 76.51, p < .001$). The discriminant function specified a mean cut-off score of 1.6, i.e. subjects who score an average of 1.6 or more on the PTED scale suffer from prolonged embitterment with an intensity of clinical relevance. This cut-off score has been demonstrated to be reliable and valid in both clinical and non-clinical populations (Rotter, 2009).

Moderate to high within-group correlations with the discriminant function were found for each item, indicating that all items are of discriminant value. Specifically, items referring
to intrusive thoughts (items 4, 5, and 19), to feelings of disempowerment, helplessness and injustice (items 1, 3, 8, and 12) and to deterioration of mood and numbness (items 9, 15, and 16) showed high correlations indicating thus the three main characteristic features of PTED symptomatology: a) intrusive and painful memories triggered by the negative critical life event, b) the feeling of helplessness and injustice caused by the event and c) the subsequent deterioration of mental well-being.

PTED in Clinical vs. non-clinical sample

When comparing all four sample groups Linden et al. (2009) revealed that their mean total scores did differ, with PTED patients showing a higher mean of 2.64 (SD = 0.92), the unselected inpatients showing a mean of 1.95 (SD = 0.92), patients in general practice showing a mean of 1.22 (SD = 0.94) and the train sample showing a mean of 0.58 (SD = 0.60). Linden et al. (2009) supported that these findings signify the prevalence of embitterment among clinical and non-clinical populations. If one treats the train sample as an approximation of the true prevalence of embitterment in the general population, 34.8% state that they remember a recent negative life event that triggered feelings of embitterment. From the train sample 2.5% showed a mean total score of 2 and greater and could be undoubtedly characterised as suffering from PTED (Linden et al., 2009). In this respect, the results of the PTED scale indicate that reactive embitterment and associated symptoms can occur in different intensities until the point of clinical relevance. However, Linden et al. (2009) argued that given the nature of the PTED scale, it should be used as a screening instrument in general populations and not as an instrument to establish a diagnosis of PTED. Characteristic symptoms of PTED can be revealed from the scale, but a diagnosis can only be made on the basis of a comprehensively assessment of the patient.
2.1.10. PTED; post-traumatic syndrome or chronic syndrome?

It is debatable whether embitterment should be referred to as a post-traumatic or a chronic disorder. Linden (2003) characterised PTED as being experienced in response to a single exceptional life event. However, according to Sensky (2010) there is a disagreement among clinicians and researchers on what constitutes a single exceptional negative life event which triggers the onset of PTED, and is regarded as the core diagnostic criterion for PTED (Linden, 2003). According to Sensky (2010), narrowing our attention especially on a single event as the precipitant of embitterment runs the danger of downplaying or ignoring key individual and contextual factors such as the patient’s personality, developmental history and situational context that might as well be aetiologically important for the onset of embitterment. It is possible that a series of adverse events which could have been exceptional and critical in nature might have had a cumulative effect. In this respect, Sensky (2010) argued that there is a dimensional expression of embitterment, which might be due to different preconditions and not necessarily a single negative life event. He therefore refers to this condition as chronic embitterment rather than post-traumatic embitterment.⁸

Although the items used in the PTED scale are reflective of Linden’s conceptualisation of PTED and are grounded in clinical observations, in the present thesis, no comprehensive assessment of any patients in order to diagnose them with PTED were made. Rather the PTED scale was used as a screening measure on healthy general working populations to get an indication of the prevalence and intensity of the feeling of embitterment in the workplace and PTED associate symptoms. For this reason, the condition is described as feeling of workplace embitterment, rather than post-traumatic embitterment disorder, as no actual diagnoses was done.

⁸ See Chapter 4 for discussion on the ‘chronicity of embitterment’
2.1.11. Embitterment and the workplace

Given the significant role of work in today’s world and the amount of time we devote to work, it cannot be denied that the workplace is not only important for making a living but also for a person’s self-definition, as most people define themselves and their social status through their professional identity. Regardless people’s occupation, the workplace might be a source of events and experiences of humiliation, injustice, unfairness, and downgrading. These experiences in turn are unavoidably associated with stress, depression, burnout but also embitterment. Muschalla and Linden (2011) outlined some universal and constituting workplace features that are undoubtedly related to stress and reasonably with embitterment and are presented in the following paragraphs.

The main aim of employees in their workplace is to achieve what they have been asked to do and fulfil their duties. However, this need of achievement encompasses the fear of failure, which in turn can result in sanctions. Especially when one perceives that the sanctions given are incorrect or unjust, feelings of embitterment can arise. In the same vein, many employees have the desire and expectation to move up on the organisational ladder thus inevitably rank-related fights are common in many organisations and especially in hierarchical organisations such as the police. Any competition or fight always involves a ‘winner’ and a ‘loser’, and this is also the case for rank fights, which involves the degradation and sometimes humiliation of one of the competitors. Therefore, losing a rank fight and especially when it is accompanied by humiliation or injustice, embitterment reactions might be caused.

In the wake of the current global economic recession, the crisis in the labor market of many EU and US countries has led to escalating unemployment rates. Given the important role of peoples’ professional identity for their social status, job loss and unemployment has serious economic, social and human costs. Due to the fact that job loss is one of the most
traumatic life experiences (Spera, Buhrfeind, & Pennebaker, 1994), it is related to a high degree to poor well-being with unemployed individuals showing far more mental health issues (distress, depression, anxiety, psychosomatic symptoms and subjective well-being and self-esteem) than employed individuals (Paul & Moser, 2009). Especially when unemployment and job loss is caused by an unjust event. In the same vein, it is perhaps no coincidence that when Linden (2003) initially introduced the concept of embitterment, the case vignette used to describe the onset of embitterment was focused on someone who lost his job in the aftermath of a service reorganisation. However, Sensky (2010) argued that embitterment is more likely to arise if unemployment is experienced as due to reneging rather than disruption. Reneging refers to the deliberate disregard on an employee’s responsibilities from the organisation, whereas disruption refers to the organisation’s need to change due to changing economic or environmental factors. Sensky (2010) further added that those who have experienced embitterment in a previous organisation they worked for, are more likely to re-experience embitterment in a future organisation. However, these statements are still to be tested by research.

Other workplace features that might be related to embitterment include conflicts with third parties such as customers, pupils, clients or even colleagues and supervisors. Rupp and Spencer (2006) for instance found that customers are a vital source of justice and that their behavior influences the reactions of the service worker either negatively or positively. Given that customer service workers require ‘emotional labor’— that is they must display required emotions towards customers (Rupp & Spencer, 2006) — they have limited or even no possibilities to react when confronted with negative comments, insults or humiliations. Thus, inevitably reactions of embitterment might be experienced. Conflicts might also arise in a professional setting within the workplace between colleagues. Such social conflicts can be long-lasting and problematic in a way and are described as mobbing, bossing, crowding or
workplace bullying. Such phenomenon can lead to negative consequences on psychological and somatic health, and if it involves humiliation or injustice it can generate feelings of embitterment. The onset of social conflicts can be found in dysfunctional communication among colleagues or between levels of hierarchy, which in turn leads to disagreements and misunderstanding and can contribute to embitterment reactions.

Given these facts, it is surprising how many job and organisational features can ‘possibly’ lead not only to burnout, depression and anxiety but most importantly to the development of embitterment reactions; ‘possibly’, as occupational psychologists have overlooked the phenomenon of embitterment and the research on the field of embitterment and the workplace is still in its infancy.

**What do we know so far for the relationship between embitterment and workplace?**

Surprisingly, the area of embitterment within the workplace is understudied with only five studies being published on embitterment in the workplace. A summary of these studies is presented in Table 2.2. Ege (2010) examined in an empirical study the relevance of PTED diagnosis in the context of work conflicts, particularly bullying. Workplace bullying occurs when an employee experiences a persistent pattern of mistreatment from others in the workplace that makes someone feel intimidated or offended (Einarsen & Skogstad, 1996). As supported by Linden (2003), Ege (2010) argued that due to the psycho-physical symptoms, victims of workplace conflicts show many diagnoses of depression, adjustment disorders or PTSD, which however seem for many reasons to be inaccurate and incorrect. Ege (2010) thus argued that PTED might be more relevant in the context of work conflicts (bullying, straining

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9 One of which is Study 1 of this thesis (Michailidis & Cropley, 2016), one (Sensky et al., 2015) being published during the completion of Study 1 and one (Dunn & Sensky, in press) being published after completion and publication of Study 1.

10 Because of the extremely limited number of studies published on this research topic a systematic review could not be done
This argument was supported as the evaluation with the LIPT (Leyman Inventory of Psychological Terrorism), the PTED self-rating scale and a guided interview, revealed that 91.5% of 118 employees reporting conflict at work suffered from PTED, and this rate was 94.7% for the participants who reported being victims of bullying. Therefore, Ege (2010) supported that victims of bullying/mobbing are very often affected by PTED and show all the relevant features such as embitterment, injustice etc., shedding in this way some light into the understudied area of embitterment in the workplace.

In a more recent study by Karatuna and Gök, (2014), the association between perceived victimization from workplace bullying and self-reported embitterment was examined. As also supported by Ege (2010), Karatuna and Gök (2014) also argued that PTSD does not really fulfil the symptoms and characteristics of the victims of bullying, suggesting that PTED might be a more appropriate diagnostic term for victims of workplace bullying/mobbing. In accordance with these arguments, Karatuna and Gök (2014) examined the hypothesis that workplace bullying would be positively associated with PTED. Perceived victimization from bullying at work was assessed by behavioural experience method (bullying behavior inventory) and self-labeling method. Embitterment was measured by the PTED self-rating scale that assess features of embitterment reactions to negative life-events (Linden et al., 2009). Findings revealed that workplace bullying was highly correlated with displaying embitterment reactions. Moreover, victims reported each PTED self-rating item significantly higher than non-victims. Therefore, Karatuna and Gök (2014) argued that PTED shall be considered as a suitable diagnostic term for victims of workplace bullying.

Interestingly, the core feature of PTED — feelings of injustice, showed the highest mean scores among the participants in Karatuna and Gök’s (2014) study. Given that workplace bullying is regarded as a form of injustice due to the fact that the acts that establish bullying are unjust, disrespectful and humiliating (Namie, 2007), this finding is in line with Sensky’s,
(2010) and Muschalla and Linden’s (2011) argument that the experience of embitterment arises by the perceived failure of *organisational justice*. The association between organisational justice and more precisely procedural justice with embitterment has been empirically supported in a recent study conducted by Sensky et al. (2015), who found that NHS staff who are embittered perceive their organisation as unsupportive to them, with workers showing low levels of procedural justice. The further exploration of the relationship between organisational justice and embitterment is covered in Chapters 3 & 4.

**2.1.12. Conclusion to Part I**

The literature reviewed in part I is adapted from both the clinical and occupational literature. Drawing on the clinical literature was essential in order to get a breadth understanding and knowledge on what embitterment is from a more clinical perspective; how it differs and links to other mental disorders such as depression and PTSD; what is meant by embitterment, what causes embitterment and what are the symptoms of it, were some of the areas reviewed. As clinical observations as well as empirical evidence suggests when an individual reaches great intensities and symptoms embitterment can be defined as an illness. As stated in part I, Linden et al., (2007) revealed critical life events that can lead to embitterment were in 72.9% work related. Therefore, towards the end of the literature review attention is focused on the occupational health psychology literature and the findings relating to embitterment in the workplace. Further research in this field is clearly required, as only a limited number of studies have been published investigating workplace embitterment. Thus, the main aim of this thesis is to expand the empirical literature and findings on workplace embitterment.
<table>
<thead>
<tr>
<th>Study name</th>
<th>Country</th>
<th>Workplace feature in relation to embitterment</th>
<th>Participants</th>
<th>Measures for embitterment</th>
<th>Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ege (2010)</td>
<td>Italy</td>
<td>Workplace conflict (bullying, straining &amp; other conflicts e.g. daily interpersonal conflicts)</td>
<td>N = 118</td>
<td>PTED scale</td>
<td>Victims of workplace bullying are very frequently (94.7%) affected by PTED. PTED represents a diagnosis for victims of workplace conflict, especially bullying.</td>
</tr>
<tr>
<td>Karatuna &amp; Gök (2014)</td>
<td>Turkey</td>
<td>Workplace bullying</td>
<td>N = 397</td>
<td>PTED scale</td>
<td>Exposure to workplace bullying positively related with reporting embitterment reactions. Feelings of injustice, intrusive thoughts and negative mood (core features of PTED) received the highest mean scores among victims.</td>
</tr>
<tr>
<td>Sensky et al., (2015)</td>
<td>UK</td>
<td>Procedural justice, psychological work contract</td>
<td>N = 236</td>
<td>PTED scale</td>
<td>Chronic embitterment was associated with perceived breaches of procedural justice, but not with the implicit psychological contract the employee assumes is shared by the employer.</td>
</tr>
<tr>
<td>Michailidis &amp; Cropley (2016)</td>
<td>UK</td>
<td>Organisational justice, Over-controlling supervision Work-related rumination</td>
<td>N = 337</td>
<td>PTED scale</td>
<td>Procedural injustice and over-controlling supervision were significant predictors of workplace embitterment. Workplace embitterment contributed significantly to the prediction of increased affective rumination and reduction in detachment.</td>
</tr>
<tr>
<td>Dunn &amp; Sensky (in press)</td>
<td>UK</td>
<td>Work-related rumination Depression Beliefs about rumination</td>
<td>N = 79</td>
<td>PTED scale</td>
<td>Affective rumination contributed to embitterment independently of depression.</td>
</tr>
</tbody>
</table>
2.2. Part II – Organisational justice and Embitterment in the workplace

2.2.1. The initial two-factor organisational justice model

Justice is vital to employees who experience various decisions in the workplace, which have important economic and socio-emotional consequences for them. Therefore, they critically judge the decision making they experience by questioning whether the decision made was fair. Initially scholars focused on distributive justice (Adams, 1965; Leventhal, 1976) which refers to the perceived fairness in relation to the decision outcomes people receive for their work in comparison to others. Therefore, justice is assessed in terms of what people get. This notion of distributive justice derives from Adam’s (1965) work on equity theory which denotes that people feel equitably treated if they perceive that their input and output ratio is equivalent to others e.g. colleagues.

However, justice does not solely refer to the outcomes (i.e. rewards and distributions) of those decisions, but research has also focused on people’s perceived fairness of the processes that lead to the decisions and distribution of outcomes – that is how they get the outcomes (Leventhal, 1980; Leventhal, Karuza, & Fry, 1980; Thibaut & Walker, 1975), known as procedural justice. Employees significantly value the procedures used in their organisations as these reveal to a great extend the organisation’s commitment to being fair and just towards their employees. Therefore, employees question themselves on whether they have a say on decision making processes or whether they influence in any way the decision outcome. Procedural justice is rooted to Leventhal’s (1980) fair process criteria, such as consistency, lack of bias, correctability, representation, accuracy and ethicality.

Organisational justice was initially communicated as the subjective perception of how fair the outcome has been distributed and as how fair the organisational systems/procedures were used to allocate these outcomes. Thus, a two-factor conceptualisation of organisational
justice was supported by integrating distributive and procedural justice (Greenberg, 1990). With respect to the two-factor conceptualisation of organisational justice, Sweeney and McFarlin, (1993) identified a model in which distributive justice was associated to personal-referenced outcomes such as rewards satisfaction and procedural justice was associated to organisational-referenced outcomes such as organisational engagement.

2.2.2. Initial introduction of interaction justice

However, the clarity of this two-factor conceptualisation of organisational justice was questioned by Bies and Moag (1986) who introduced the concept of interactional justice, which refers to people’s concern regarding the quality of interpersonal treatment they receive and experience when organisational procedures are performed. This aspect of justice is based on people’s concerns in relation to justice, as people usually talk about injustice in terms of what they experience and especially the mistreatment they receive from others (Shreve & Shreve, 1997). According to Bies and Moag (1986) injustice arises by a violation of people’s ‘sacred self’, since by experiencing interactional injustice people perceive their human and existential dimensions as being underestimated and underemphasized. This experience leads to intense and personal pain, which consequently leads to the deep harm of one’s psyche and identity – that is one’s self.

The sense of injustice is awakened when profanities violate the sacred self of an individual. Bies (2001) identified a variety of interpersonal profanities that can shed light on the boundaries of the sacred face. To begin with people are concerned about derogatory judgments made about themselves by others. An individuals’ self-system is mainly based on the integrity of one’s self-identity (Steele, 1988). Thus, any wrong accusations, or false and degrading statements towards an individual can generate feelings of injustice (Bies & Tripp, 1993). Examples would be wrongful and unfair accusations about one’s work e.g. being
accused of stealing ideas or being blamed for a teams’ failure. Moreover, bad mouthing, for example creating an unfavorable and non-representative image of your colleague, or using pejorative labels to stigmatize others, form examples of derogatory judgments that might generate feelings of injustice.

The bedrock of trust in relationship is the expectation of honesty and fulfilling promises. The sacred face is exposed when trusting others, thus any corruption of trust arouses the sense of injustice. Examples of such deceptions, that form another interpersonal profanity, would be lying—consequently making people feel as if they have been ‘dumped’ and ‘manipulated’ (Bies & Tripp, 1996). Another example would be breaking promises which makes people angry and resentful (Bies & Tripp, 1996).

_Invasion of privacy_ can be regarded as another form of interpersonal profanity. Individuals have a ‘hidden self’ (Bies, 1996), which they want to keep private from others. Thus, violation of privacy and self-disclosure, can generate feelings of injustice. Examples relating to invasion of privacy include disclosure of confidence and secrets (Bies & Tripp, 1996) and asking improper and personal questions (Bies & Moag, 1986). Finally, the sense of injustice arises when interpersonal treatments convey disrespect (Bies & Moag, 1986) as the person’s self-identity is violated. Bies (2001) outlines three forms of disrespect that can lead to violation of interactional justice. Inconsiderable actions, for example when not receiving feedback on time or when not receiving explanations or account of decisions made (Bies & Moag, 1986). Abusive words or actions, for example rudeness, publicly criticizing people, actions intended to embarrass and humiliate a person publicly, prejudicial statements and being target of insults (Bies & Moag, 1986). Finally, coercion, in the form of practices that impose undue psychological and physiological pain such as duress/threat.
2.2.3. Moving from a two-factor organisational justice model to a three-factor model

There has been an ongoing debate on whether interactional justice should be treated as a third type of organisational justice (Aquino, 1995; Barling & Phillips, 1993; Skarlicki & Folger, 1997; Tata & Bowes-Sperry, 1996) or whether it should be considered a subset of procedural justice (Moorman, 1991; Niehoff & Moorman, 1993; Tyler & Bies, 1990). This controversy has its roots in Bies’s (1987) argument that interactional justice can be present in the context of decision making processes; it refers to people’s concerns about “the quality of interpersonal treatment they receive during the enactment of organisational procedures” (Bies & Moag, 1986, p.44). Thus, one could argue that interactional justice should be regarded and treated as a component of procedural justice. However, Bies (1987) conceptualized interactional justice as a third form of justice independent from procedural and distributive, and supported his argument by examining how interactional and procedural justice empirically differentiate. Studies investigating the content and description of unjust events as experienced and perceived by individuals revealed that although many events identified were compatible with concepts of distributive justice (e.g. unfair payment) and procedural justice (e.g. harsh use of one’s status), there were still some unjust events (e.g. disregarding the feelings and needs of others, criticism and accusation, abusive or aggressive treatment) identified that centered around the quality of interpersonal treatment people receive (Mikula, 1986; Messick, Bloom, Boldizar, Samuelson, 1985; Mikula, Petri, & Tanzer, 1990; Bies & Tripp, 1996). Based on this empirical differentiation, Bies (2001) supported that people do distinguish between procedural and interactional elements of justice. However, a main limitation of this empirical differentiation was that the studies conducted by Mikula, (1986), Messick et al., (1985) and Mikula et al., (1990) used sample based on students and not on employees. Only Bies and Tripp’s (1996) study was based on MBA students who had significant work experience within the workplace. In addition to the empirical differentiation,
Bies (2001) also examined how the concepts of procedural and interactional justice relate to different organisational variables. Findings from studies (Moorman, 1991; Barling & Phillips, 1993) did reveal that interactional and procedural justice do affect organisational behaviours variables differently. Therefore, Bies (2001) concluded that it does make theoretical and analytical sense to maintain the distinction between procedural and interactional justice.

2.2.4. Moving from a three-factor to a four-factor organisational justice model

A second debate within the field of organisational justice is whether organisational justice can be viewed as a four-factor construct. As suggested by Greenberg (1993a), respect, sensitivity and propriety features of interactional justice might best be viewed as *interpersonal facets* of distributive justice, due to the fact that such features might impact the reactions to decision outcomes (i.e. announcing an unfavorable decision outcome to people with a more respectful manner may slightly reduce peoples anticipated negative feelings). Greenberg further argued that the justification and truthfulness aspects of interactional justice might best be viewed as an *informational* face of procedural justice since honest justifications and explanations often provide the information necessary to evaluate decisions and procedures at work (i.e. when an unfavorable procedure or decision is well communicated and explained, as for why it had to be that way, it might not have such negative effect). Thus, Greenberg brought a new perspective to the organisational justice model and suggested that there are four types of organisational justice; distributive, procedural, interpersonal and informational (Table 2.3).

In order to examine the dimensionality of organisational justice and provide empirical support to address these debates, Colquitt (2001) developed a justice measure were items were generated based on important works of the justice literature (e.g. Bies & Moag, 1986; Leventhal, 1976). More specifically, the procedural justice items are based on the criteria of process control (i.e. ability to express one’s view and comments during a process) and decision
control (i.e. ability to influence the actual outcome itself; Thibaut & Walker, 1975), as well as Leventhal’s (1980) fair criteria for procedures; consistency, bias suppression, accuracy of information, correctability and ethicality. The distributive justice items are based on Leventhal’s (1976) equity rules, referring to an outcome e.g. pay, and its appropriateness, given employees contributions. Finally, the interactional justice items are developed based on Bies and Moag’s (1986) four criteria for interactional justice; justification, truthfulness, propriety, and respect. In practice these criteria have been examined along the dimensions of explanation and sensitivity (e.g. Greenberg, 1990), which have been shown to have independent effects from one another (e.g. Greenberg 1993a; Shapiro, Buttner, & Barry, 1994). Therefore, items assessing interactional justice are designated, as Greenberg (1993a) suggested, as interpersonal and informational justice. The former encompasses Bies and Moag’s (1986) justice criteria of propriety and respect, whereas the informational justice items contain the justification and truthfulness criteria, as well as factors that have been supported by Shapiro et al.’s (1994) work on how to improve the perceived adequacy of explanations; reasonable, timely and specific.

Colquitt (2001) examined the construct validity of the scale by conducting two independent studies, one in a university setting and one in a field setting using employees. Confirmatory factor analysis supported a four-factor structure to the measure, with distributive, procedural, interpersonal and informational justice as distinct dimensions. Colquitt (2001), supported therefore that by integrating procedural and interactional justice together would just conceal key differences between them. Moreover, the findings further suggested that it is best to break interactional justice down into informational and interpersonal justice as they too had differential effects. Finally, Colquitt (2001) also demonstrated that the justice dimensions show predictive validity on important outcomes such as leader evaluation, rule compliance, commitment and helping behavior.

Support for the four-factor model of organisational justice comes from a meta-analytic
review conducted by Colquitt, Conlon, Wesson, Porter and Ng (2001) who argued that although the justice dimensions are moderately to highly related, they can be empirically distinguished from one another as they relate uniquely to several organisational outcomes (e.g. satisfaction, commitment, citizenship and withdrawal). The four-dimensional structure of organisational justice has also been used in different studies and contexts. For example, Judge and Colquitt (2004) conducted a study to examine the relationship between organisational justice and stress and whether work-family conflict was a mediator of this relationship. Organisational justice perceptions were measured using Colquitt’s (2001) four-dimensional measure. Judge and Colquitt (2004) did support that a four-factor model provided a better fit to the data than a three-factor model collapsing interpersonal and informational justice.

Table 2.3

Four-factor model of organisational justice (Colquitt, 2001)

<table>
<thead>
<tr>
<th>Type of justice perception</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Distributive justice</td>
<td>Perceptions based on the extent to which the individual feels fairly rewarded for the work they provide - <em>what</em> employees get.</td>
</tr>
<tr>
<td>2. Procedural justice</td>
<td>Perceptions targeted towards the organisational systems used to determine <em>how</em> rewards are distributed.</td>
</tr>
<tr>
<td>3. Interpersonal justice</td>
<td>Perceptions based on the extent to which people feel treated with respect and dignity.</td>
</tr>
<tr>
<td>4. Informational justice</td>
<td>Perceptions based on the ways in which decisions or procedures at work are communicated and explained to employees.</td>
</tr>
</tbody>
</table>
2.2.5. Effects of organisational injustice on organisational outcomes

The relationship between organisational injustice dimensions and organisational outcomes has been well documented (e.g. Colquitt et al., 2001). An important organisational outcome that has been found to be negatively affected by perceived unfairness and injustice is organisational commitment. Organisational commitment can be best understood as the degree to which an employee feels emotionally obliged to the organisation he/she works for (Allen & Meyer, 1990). Aryee, Chen, Sun, and Debrah (2007) for instance supported that perceptions of interactional justice act as a mediator for the pathway between abusive supervision to performance outcomes and commitment. When employees received abusive supervision, this affected their perceived interpersonal justice at work, and this consequently led to lower organisational commitment and reduced organisational citizenship behaviours.

Organisational citizenship behaviors (OCB) are defined as any behaviours or performances that are not necessarily rewarded and extend beyond task performance, aiming at helping to improve the organisational functioning (Organ, 1990). Such behaviours are driven mainly by fairness perceptions, and scholars have demonstrated a relationship between procedural justice and OCB (Moorman, 1991).

Other organisational outcomes that have been examined in the organisational justice literature are job and outcome satisfaction. The former refers to satisfaction with the job in general and has been found to be predicted by distributive justice (McFarlin & Sweeney, 1992) as well as procedural and interactional justice (Masterson, Lewis, Goldman, & Taylor, 2000). Outcome satisfaction includes mostly satisfaction with decision making outcomes such as pay, rewards, and performance evaluations and has been found to be strongly related to distributive justice (Colquitt et al., 2001). Withdrawal behaviors and intentions, such as absenteeism, turnover, and neglect have also been related to organisational justice. However, findings linking the dimensions of organisational justice with withdrawal is somehow
‘muddied’, as some studies e.g. Masterson et al., (2000) have found procedural justice being more related to withdrawal than interactional justice, whereas Colquitt et al., (2001) found than withdrawal and distributive justice correlated stronger than with procedural or interactional justice dimensions. Perceived unfairness in an organisation has been found to be related to negative reactions such as employee theft (e.g. Greenberg, 1993b) and organisational retaliatory behaviours (Skarlicki, & Folger, 1997; Skarlicki, Folger, & Tesluk, 1999). Skarlicki and Folger (1997) found that organisational retaliatory behaviours had about the same correlations with distributive, procedural and interactional justice, with interactional justice having the strongest unique effect. Colquitt et al., (2001) also revealed that interpersonal justice dimension was strongly related to negative reactions. Experiencing unfairness in the workplace therefore is related to many important organisational outcomes, and it has been supported by studies (e.g. Aryee et al., 2007; Skarlicki et al., 1999). However, justice research can be extended on other outcome variables of importance — that of employees’ health.

2.2.6. Effects of organisational injustice on employees’ wellbeing

Workplace injustice can take a toll on employees’ physical and psychological health. This has indeed been supported in a meta-analysis by Robbins, Ford, and Tetrick (2012), where perceptions of unfairness have been found to be reliably associated with multiple indicators of both mental and physical health. In organisational settings, evaluations of injustice have been positively related to feelings of anger, aggression, and negative social behavior (Skarlicki et al., 1999). In turn, such negative state and feelings have been linked to health problems (Danna & Griffin, 1999). More specifically, Greenberg (2006) found that underpayment — a form of organisational injustice — lead to insomnia. Studies have also found that the experience of organisational injustice is associated to strain and exhaustion which might consequently lead to increased absences from work due to sickness (Elovainio,
Kivimäki, & Helkama, 2001; Elovainio, Kivimäki, & Vathera, 2002). Increased anxiety (Harlos & Pinder, 2000) and depression (Tepper, 2001) have also been associated with workplace unfairness. Finally, experienced injustice has been found to be related to psychiatric disorders (Kivimäki, Elovainio, Vathera, Virtanen, Stansfeld, 2003), and even coronary heart diseases (Kivimäki et al., 2005).

**Organisational Injustice as a source of stress**

When justice is called into question it may be considerable a source of stress. Even simple ‘everyday injustices’ that one might underestimate and not reckon, such as your manager failing to acknowledge your effort and contributions to a successful task, might be a source of stress. However, Greenberg (2004) shed light on the connection between injustice and stress by drawing on the cognitive appraisal model of stress and coping. Lazarus’s (1999) cognitive appraisal model states that an event functions as a stressor, only if the individual cognitively appraises it as such. This happens in two stages; the primary and secondary appraisal. In the primary appraisal, the individual considers the extent to which the event can indeed harm him or her, by asking questions such as “how did this happen”. If the event is appraised as harmful then the secondary appraisal occurs, and this involves evaluating the extent to which the individual can avoid or minimize the harm. If the individual feels unable to deal with the event or the harm it produces, then it does serve as a stressor.

Drawing on the primary appraisal process, Greenberg (2004) stated that there is an interactive relationship between distributive justice and procedural justice with respect to stress reactions. Specifically, Greenberg (2004) supported that distributive injustice is a greater stressor when people perceive it as the aftermath of an unfair procedure than from a fair procedure. If for example, Michael is paid less than his colleague who does the exact same job (distributive injustice), he will gather information to help him assess the procedure with which this decision was made and appraise the event as being harmful. In this regard, the process of
assessing the procedural justice, leads to appropriate interpretation of distributive injustice. When procedures are believed to be fair they constitute that there is “nothing to worry about”, and thus distributive justice is perceived. However, when procedures are perceived as unfair, for example in Michael’s case his payment resulted from a highly-biased performance appraisal system, they constitute that “something is going wrong, so I should worry”, as underpayment is assessed as a source of harm, leading thus to perceived distributive injustice and paving the way for stress. Therefore, both distributive and procedural injustice forms must be present to lead to reactions of stress. This has also been supported by Tepper (2001), who found that employees who reported the lowest levels on both distributive and procedural justice experienced the greatest signs of stress and especially high levels of emotional exhaustion, anxiety and depression. Similarly, this was the finding of Janssen (2004) who examined under which conditions innovative behaviour in organisations leads to stress and revealed that the introduction of innovative ideas was most stressful to people when they experienced both low levels of procedural and distributive justice.

However, we must also consider what happens during the secondary appraisal, which is the stage where individuals evaluate the resources required to minimize, tolerate, and eradicate harm caused by the event. In regard to this, interpersonal justice is introduced to complete the puzzle on how injustice leads to stress. As already mentioned, interactional justice, refers to the fairness of the interpersonal treatment as well as the course of explaining and providing information on procedures and decisions made. Therefore, if an employee experiences distributive and procedural injustice he is likely to turn to organisational figures e.g. supervisor who can shed light on the unjust policies and decisions. If the employee assesses his/her supervisor’s response as supportive, kind, caring and willing to be ‘part of the solution’ (i.e. someone on who the employee can count on in order to solve the undesirable situation) then the employee’s stress reactions would be fairly buffered. Thus, when a supervisor (or other
organisational authority figures, to whom employees turn to), demonstrates interactional justice, employees feel valued members of the organisation and that they are worth for explanations and respect. Therefore, Greenberg (2004) stated that the extent to which distributive justice elicits stress depends on the degree to which it appears to be a result of both an unfair procedure (primary appraisal) and a disrespectful and uncaring interpersonal treatment by an authority figure, suggesting that nothing can be done to solve the unjust situation (secondary appraisal).

Support for this comes from Judge and Colquitt’s study (2004) who found that lower levels of both procedural and interactional justice were associated with workers’ experience of workplace stress. Studies have also supported the idea that interactional justice can buffer the reactions of stress caused by distributive and procedural justice. For example, Greenberg (2006) conducted a study with nurses, who due to a change in the compensation policy, received lower payment. As the nurses experienced both distributive injustice as they were paid less compared to the hours they worked for, as well as procedural justice since they had no say to the decision made, this lead to stress reactions, particularly in the form of suffering from sleeping problems. However, what was interesting, was that those nurses who worked for interpersonally fair supervisors, experienced greater improvements with their stress reaction. Specifically, these supervisors had received a training course on how to promote interactional justice perceptions to their nurses, for example on how to share openly information with subordinates and how to communicate in a respectful and dignified way.

Given the aforementioned, it seems that when employees are treated in an interpersonally fair manner and they perceive interactional justice in their workplace, this can mitigate stress reactions caused by possible distributive and procedural injustice events. Thus, given that interactional injustice might play a crucial role in the stress reactions it is also important to look at the authority’s figure treatment towards the employees.
2.2.7. Unfair supervision as a form of interactional injustice

Given that interactional justice reflects the interpersonal dimension of fairness (Bies, 2001), interactions in which employees are treated with respect and dignity, and are free of offensive statements and personal attacks, are regarded as interpersonally fair. Individuals expect others and especially those of higher status who are responsible for executing procedures, to be sensitive to their personal needs, to treat them with respect and propriety and to be aware of communicative acts that constitute face threats and actions that threaten one’s social image and self-image (Bies & Moag, 1986). Given that supervisors are usually responsible for making decisions and implementing them in the workplace, the way they behave and interact with those affected by the decisions taken, is regarded as an important form of interpersonal justice (Bies & Moag, 1986; Tyler & Bies, 1990). A specific phenomenon within the field of interpersonal justice therefore is aggressive supervision (Dupré & Barling, 2006). Bies (2001) argued that interactional injustice involves treatment that is, or is experienced as undeserved and irrational. In this vein, Dupré and Barling (2006), regarded aggressive supervisors as those who are over-controlling, such as monitoring their subordinates’ work behaviours too closely and as a result subordinates feel that their supervisors’ interpersonal treatment is unfair. Dupré and Barling, (2006) supported that although a certain level of supervisory control is often essential, when subordinates perceive that their work performance is highly controlled by their supervisors they feel that this is a lack of respect, dignity and courtesy and thus they experience interactional injustice.

Studies have supported that unfair treatment by supervisors influence negatively subordinates’ work-related attitudes and psychological health. For example, Ashforth (1997) found that unfair treatment by supervisors, especially in the form of tyrannical supervision (which included belittling subordinates, displaying little consideration and using noncontingent punishment) was associated with frustration, helplessness and alienation from
work. Studies have also revealed that students who experience unfair treatment by their supervisors show lower levels of satisfaction as well as elevated levels of psychological distress (Richman, Flaherty, Rospenda, & Christensen, 1992; Sheehan, Sheehan, White, Leibowitz, & Baldwin, 1990). Ferrie et al., (2006) conducted a study examining the effects of organisational injustice on employees’ mental health, and especially the effects of unfair treatment by supervisors (as the relational component of organisation injustice). Findings revealed that indeed unfair treatment by supervisors increased the risk of poor mental health. Moreover, the study further showed that employers’ efforts to ensure that employees are treated fairly at work resulted in health benefits.

Given that interpersonal injustice is also communicated as experiencing unfair treatment by supervisors in the form of over-controlling subordinates’ work, and that unfair treatment by supervisors does negatively influence subordinates’ work related attitudes and psychological health, the present thesis further examines the association between embitterment and unfair supervision treatment.

2.2.8. Conclusion to part II

The main objective of the present literature review was to bring together some of the key research on organisational justice and address the question on how it associates to embitterment. The hallmark feature of embitterment is that it is triggered by an unjust, unfair event. With this in mind, it seems reasonable to suggest that a justifiable avenue of research is to address the association between organisational justice and workplace embitterment. As stated in Part I, some initial findings support the association between procedural justice and embitterment (Sensky et al., 2015). However, this study only focused on one area of organisational justice. Therefore, further research is warranted.
Part II starts off by describing how a two-factor model of organisational justice progressed to Colquitt’s four factor model of organisational justice (distributive, procedural, interpersonal and informational justice), which is used throughout the present thesis. The adverse effects workplace injustice can have on employees’ physical and psychological health is well documented by occupational health research. In addition to reviewing the literature on organisational justice, part II also looked at over-controlling supervision which has been considered as a form of interactional injustice and which could potentially relate to workplace embitterment.
2.3. Part III – Recovery from work and embitterment in the workplace

2.3.1. Recovery from work

Given the intensification of work today, no one can deny that recovering from strains of work is an essential need that all people should at some point fulfil. As when a car runs out of fuel, the same analogy can be applied for employees who have to replenish their resources from work. Thus, work recovery is best communicated as the process that revitalizes one’s energetic resources (Cropley & Zijlstra, 2011). During a typical workday people engage in a variety of activities such as decision making, problem solving, meeting with people, presenting, concentrating, arranging meetings, checking emails and so on. Such activities require mental effort and prolonged engagement in such activities and ‘thinking’ can lead to psychological and physiological reactions consequently generating strain and fatigue and making the employee feeling ‘used-up’ at the end of his/her working day. Geurts and Sonnentag (2006) therefore defined recovery as the “psycho-physiological unwinding following effort and energy expenditure at work” (p.482).

The importance of adequate recovery lies in its link to crucial consequences both on the individual’s job performance and well-being. In a study conducted by Sonnentag (2003) it was found that sufficient recovery after work had a positive effect on employees’ work engagement. This elevated level of engagement followed by adequate recovery, in turn lead to proactive behaviours by employees, comprising behaviors such as taking initiative and pursuing learning goals. A plethora of studies have also highlighted the importance of sufficient recovery on employees’ well-being. For instance, Rook and Zijlstra (2006) supported that insufficient recovery can result in fatigue. When complete recovery is postponed employees might be driven into a vicious cycle, where insufficient recovery from one working day requires extra effort to meet the job demands and have to put extra effort to get through normal tasks.
Therefore, rebalance of suboptimal psychological states is delayed and eventually occupational induced fatigue may develop even into Chronic Fatigue Syndrome (CFS; Sluiter, Frings-Dresen, van der Beek, & Meijman, 2001). Insufficient recovery could further lead to strain and in the long turn it might negatively impact health and consequently increase employees’ sickness absence (Meijman & Mulder, 1998).

The mechanism facilitating recovery is conceptualized in the context of two psychological theories from which the construct ‘need for recovery’ originates; effort-recovery model and conservation of resources theory. The **effort-recovery model** coined by Meijman and Mulder, (1998) proposes that at work people must devote mental and physical effort and resources in order to deal with work demands (e.g. working hours), which is an umbrella term for all the task demands and psychosocial factors in the work environment. This devotion encompasses behavioural, physiological and emotional reactions to work demands, which in turn lead to the erosion of resources (e.g. energy) and generate the need to ‘recover’. Recovery occurs only when the exposure to work demands ceases and homeostasis is achieved between the respective psychological and physiological systems within a certain period of time (Meijman & Mulder, 1998). The **conservation of resources theory** (COR; Hobfoll, 1998) has also been found to be a major explanatory model for understanding stress and recovery process at work (Westman, Hobfoll, Chen, Davidson, & Laski, 2005). Based on this theory individuals seek to acquire and maintain resources that constitute individuals’ necessities of life, which can be objects (e.g. home), personal characteristics (e.g. self-esteem), conditions (e.g. being employed), and energies (e.g. money). Gorgievski and Hobfoll (2008) stated that the workplace environments are regarded as not only providing employees with important resources (e.g. money), but it also places a high resource demands upon them (e.g. job engagement, energy, flexibility). Loss of resources, or a threat of loss can be a precursor of stress. For recovery from stress to take place and to regain positive mood, individuals must replenish their resources and
especially their internal attributes (i.e. personal and energies). Therefore, drawing from both theories, recovery takes place by two complementary processes. Initially, it is crucial to cease from work demands and to avoid activities that call upon the same or similar functional systems or internal resources as those required at work. And then by replenishing new resources such as personal characteristics and energies further facilitates the restoration of threatened resources (Sonnentag & Fritz, 2007).

Based on the assumption that poor or even lack of recovery plays a crucial role in explaining why job stressors may impact negatively well-being and health, Kinnunen, Feldt, Siltaloppi, and Sonnentag (2011) proposed the Job Demands-Resources-Recovery model (JD-R-R), which is an extension of the original Job-Demands Resources (DJ-R; Demerouti, Bakker, Nachreiner, & Schaufeli, 2001) model by considering recovery as a significant mediation mechanism that underlies the relationship between work characteristics and well-being/ill-health. The idea behind the JD-R model is that employees’ working characteristics can influence their health/well-being and commitment to the organisation. Specifically, regardless of the type of job, job demands and job resources are important predictors of job strain and motivation. On the one hand, job demands refer to physical, psychological, social or organisational aspects of the job such as work pressure and emotional demands, that require sustained psychological and physical effort. In this regard, job demands can therefore have physiological or/and psychological costs to the individual. According to Meijman and Mulder (1998), job demands become negative job stressors when the employee has not recovered adequately and is thus unable to exert any effort to meet those demands. Job resources, on the other hand refer to those aspects of the job, for example job autonomy, opportunities for development, that may reduce work demands and encourage personal growth, learning and development. Based on the JD-R model, Kinnunen et al.’s (2011) JD-R-R model postulates that job demands inhibit recovery leading thus to impaired health (i.e. fatigue), whereas job
resources facilitate recovery and maintain positive work related attitudes such as work engagement. Specifically, Kinnunen et al., (2011) found that recovery experiences, in particular psychological detachment, mediated the effects of job demands on fatigue at work.

Recently, Zijlstra, Cropley and Rydstedt (2014) argued that by treating recovery as a static construct where recovery happens automatically when demands are no longer imposed upon people, is a rather mechanistic viewpoint with a passive role of the individual. This perspective applies, to some extent, to physical types of work and not on cognitively and emotionally demanding work. According to Zijlstra et al., (2014) an active regulation perspective on recovery is required for cognitive and emotional types of work. Thus, they proposed that recovery should be best understood as a dynamic on-going process that aims at restoring the individual’s energetic resources. Recovery does not happen automatically, rather it is regulated by the individual and is a process that takes place continuously during the day.

2.3.2. Work-related rumination

People have to physically and cognitively switch-off from work in order to be able to recover. However, one of the main factors that prevents people from ‘unwinding’ after work and remaining physiologically aroused after work is their inability to psychologically detach and disengage from work at the end of their working day (Etzion, Eden, & Lapidot, 1998). Employees do not detach from their work unless they stop thinking of work-related issues in non-working time (Cropley, Dijk, & Stanley, 2006; Rook & Zijlstra, 2006). Therefore, prolonged physiological arousal and delayed recovery from work has been linked to individuals’ unintentional persistent thoughts in the absence of obvious external cues, termed as rumination (Roger & Jamieson, 1988). The high prevalence of rumination in employees has been documented by the Employment of Britain survey conducted among 3,000 workers. The survey revealed that 72% of the workers reported thinking about work issues at the end of their
working day, 22% stated that they worried on a regular basis and 11% reported that they worried about their job during their leisure time much of the time (Gallie, White, Cheng, & Tomlinson, 1998). A representative survey of working individuals in Britain conducted by Felstead, Gallie, and Green (2002), also supported that the number of workers, who find it difficult to switch-off after work and worry about their job in their leisure time, has been on the rise over a 10-year period. This is not surprising, as people spend over a third of their waking time on work and work related activities, contributing actively to the development and well-being of themselves, their family and society and thus it occupies their mind even when not at work. ‘Work-related’ rumination has therefore been conceptualised as a “proxy of insufficient recovery” (Cropley & Millward Purvis, 2003, p. 197).

Research on rumination has been mainly governed by clinical/health psychology and not only has it been related to delayed recovery, it has also been indirectly associated with the onset of various psychological disorders (e.g. depression and anxiety; Lyubomirsky, Caldwell, & Nolen-Hoeksema, 1998; Melloings & Alden, 2000). Rumination has thus been conceptualised as ‘depressive and anxious’. ‘Depressive rumination’ describes the mental state of people who are constantly invaded by depressive thoughts, they negatively evaluate themselves, and they are characterised by a sense of uselessness and inevitability (Lyubomirsky, Kasri, & Zehm, 2003). ‘Anxious ruminators’ are governed by anxious thoughts as they perceive a problem as unsolvable and therefore cannot consider any possible coping strategy (Melloings & Alden, 2000). In support to this, Carver and Scheier (1981) stated that rumination becomes maladaptive when an individual is unable to move from his/her current state to the desired state, and cannot achieve his/her goal.

In addition to the adverse effects rumination might have for one’s psychological wellbeing, research has also supported that rumination can have unfortunate effects on individuals’ health. For instance, a longitudinal study conducted by Kivimäki et al., (2006)
found that employees who rarely recovered from work had an increased risk of a cardiovascular
dearth, even after controlling for other conventional risk factors such as smoking, alcohol
consumption etc. High trait rumination has also been found to predict elevated evening saliva
cortisol secretion (Rydstedt, Cropley, Devereux, & Michalianou, 2009). However, as with any
study involving self-sampling by participants — in this case collecting saliva — validity of the
findings might come into question, for example due to participants’ misunderstanding of the
sampling procedure. One of the key determinants for health impairments is poor sleep. A
wealth of research has supported that indeed work-related rumination has a negative impact on
individuals’ sleep quality (Cropley et al., 2006; Groeger, Zijlstra, & Dijk, 2004; Zoccola,
Dickerson, & Lam, 2009; Querstret & Cropley, 2012). Finally, impaired work-recovery has
been associated with increased psychiatric morbidity such as concentration issues, worry,
somatic symptoms, anxiety etc. (Cropley & Zijlstra, 2011).

2.3.3. Is rumination always harmful?

Given that most research focuses on persistent thinking about negative experiences (e.g.
Pravettoni, Cropley, Leotta, & Bagnara, 2007), up to now there has been an imbalance amount
of literature that considers rumination as a negative process, which is viewed as an early
manifestation of stress. However, given Segerstrom, Stanton, Alden, and Shortridge’s (2003)
distinction between positive and negative thoughts as well as the distinction drawing upon the
purpose or focus of thoughts (i.e. problem-solving vs. searching for meaning), positive views
of rumination can also be considered. As Pravettoni et al., (2007) as well as Cropley and Zijlstra
(2011) suggested, rumination should not necessarily be implied as a harmful and negative
experience, rather it can be regarded as a positive mental activity in its performance effects
especially when it allows discovery and innovation (Baas, De Dreu, & Nijstad, 2008).

Incorporating the notion that work related rumination can be beneficial and can be
associated with positive implications, Pravettoni et al., (2007) differentiated between ‘creative’
and ‘repetitive’ rumination. The former is characterised by prolonged mental analysis of a problem that potentially leads to the solution of the problem. Whereas the latter is described as a cognitive state characterised by the appearance of intrusive, pervasive, recurrent thoughts, which are mostly negative in affective terms. Yet, a clear dichotomous distinction of ruminations can still not be given based on Pravettoni’s et al. (2007) differentiation, as although creative ruminators might reach a successful solution to a problem, due to the prolonged scrutiny of the problem they are unable to detach from work and they fail to differentiate between their professional and personal identity. Thus, creative rumination could simultaneously be considered as an adaptive cognitive process and a factor of stress.

More recently Cropley and Zijlstra (2011) suggested a three-factor conceptualisation of work-related rumination and termed these as affective rumination, problem-solving pondering and detachment. ‘Affective rumination’ is negatively connoted as it is described as a cognitive state characterised by the appearance of intrusive, pervasive, recurrent thoughts about work, resulting in a negative emotional response (e.g. annoyance, disappointment, frustration, feeling emotionally exhausted). By this, psychophysiological arousal remains high, people remain emotionally and cognitively ‘switched on’ during non-work time, and thus the unwinding, recovery process remains incomplete (Cropley & Zijlstra, 2011). The negative aspects of ruminating imply that the individual ruminates about negative events at work, unsolvable issues, or issues that may have become a threat. Even if individuals try to let go and suppress work-related thoughts during their free time, they might in fact end up repeatedly and vigorously accessing and holding their thoughts (Wegner, Schneider, Carter, & White, 1987) entering therefore a vicious circle, which prevents them from ‘switching-off’ from work. In the aftermath of individuals’ inability to suppress thoughts, negative emotions such as annoyance, might be experienced.

Given the changing nature of most organisations and the continual reorganisation they
go through in order to maintain or gain competitive advantage, employees have to re-evaluate their work and constantly try to improve their work-related performance. Inevitable employees might also encounter problems at work. Therefore, post work, employees might ruminate with a problem solving focus, either in order to find the best solution to the encountered work-related problem, or re-evaluate their performance as an attempt to improve it. In this respect, ‘problem solving pondering’ can be regarded as less damaging and even beneficial for the recovery process, as it does not involve psychological and physiological arousal (Cropley & Zijlstra, 2011). This interest of people in work issues and how to solve work related problems, suggests that they enjoy their work and that being ‘switched on’ by thinking about their work is not necessarily a problem for them. Therefore, rumination with problem solving focus can be conceptualised as a way of diminishing the discrepancy between an individuals’ current state (e.g. facing work-related problem) and the ideal outcome (finding solution to problem). Especially when the process of problem-solving pondering results in a solution, it might be beneficial for the recovery process. This is in line with research suggesting that thinking about successfully completed tasks increases positive affect, self-efficacy, and well-being (Seo, Barrett, & Bartunek, 2004; Stajkovic & Luthans, 1998). In a more recent study conducted by Syrek and Antoni (2014) it was found that the feeling of not having completed tasks at work enhances employees’ rumination about work-related problems. However, before considering unfinished tasks as ‘problems’ and stressors, we should take into account specific aspects of unfinished tasks such as urgency, priority and quantity.

‘Detachment’ from work refers to an “individual’s sense of being away from the work situation” (Etzion et al., 1998, p.579). Being physically away from work is not sufficient for the recovery process (Hartig, Kylin, & Johansson, 2007). Not only should employees abstain from work-related activities for example replying to emails, and making work related phone calls, but most crucially detachment implies that an employee disengages mentally from work,
stops thinking of work-related issues and opportunities. Employees that engage in more psychologically demanding jobs would therefore find it more difficult to detach from their work, as it is harder to identify when the psychological stressors (e.g., high workload) end such that recovery processes can take place. Precisely, the demands exerted by these stressors may be maintained outside the work environment if the employee carries on thinking about them when not at work (Brosschot, Gerin, & Thayer, 2006). A plethora of studies have highlighted the importance of psychological detachment in recovering after work. Specifically, leaving the workplace behind in psychological terms has been related to recovery from job stress. For instance, Etzion et al., (1998) revealed that detachment from work moderates the relation between stressors and burnout. Moreover, Sonnentag and Bayer (2005) found that individuals who were able to psychologically detach from work during their leisure time, reported better mood at the end of the evening. In another study, Sonnentag and Fritz (2007) revealed a negative relationship between psychological detachment and health complaints, emotional exhaustion, depressive symptoms, need for recovery and sleep problems. In a qualitative study examining how workers recover and ‘switch-off’ from work conducted by Cropley and Millward (2009), it was found that although both high and low ruminators (i.e. those who struggle switching-off from work and those who find it easy) did acknowledged the importance of leading a healthy lifestyle, only low ruminators who were able to disengage mentally from work were able to do so. Therefore, becoming psychological detached from work is a crucial aspect of the recovery process.

2.3.4. Conclusion to Part III

Embittered individuals engage in intrusive thoughts, also known as ruminations, however the features of these ruminations are still unknown. As the present thesis is focusing on workplace embitterment, the aim of this literature review was to present the concept of work related
rumination and more precisely the three-factor conceptualisation of work-related rumination termed as *affective rumination, problem-solving pondering* and *detachment*.

Following on from Chapter 2 suggesting that organisational injustice and over-controlling supervision may be significant predictors of workplace embitterment and that embitterment may be detrimental to recovery from work; the following chapter (Chapter 3) presents the results of a cross-sectional study exploring the predictors and consequences of workplace embitterment.
Chapter 3

Study 1. Exploring predictors and consequences of embitterment in the workplace

3.1. Introduction

As discussed in Chapter 2, embitterment is experienced at one time or another by virtually everyone, but it is only recently that researchers have addressed this condition. Embittered individuals feel that they have been unjustly and unfairly treated; they show a desire for revenge against the person responsible for their negative state, but at the same time they reject help from others (Linden, 2003). Linden (2003) described embitterment as the emotion generated in the aftermath of an event of personal injustice, humiliation, frustration and helplessness. Such events can happen in every life domain. Linden et al. (2007) examined the prevalence of events that can provoke feelings of embitterment and revealed that such critical life events were, in most cases, work-related (72.9%). Given some universal workplace features such as dysfunctional communication among colleagues or conflicts with third parties such as supervisors, the workplace can be experienced by some as an arena of events involving humiliation, injustice, and unfairness. Therefore, these events and experiences that are accompanied by injustice can in turn lead to embittered reactions. However, little is known about the feeling of embitterment in the workplace. The main objective of this study was to examine potential predictors and consequences of embitterment within the workplace.

Predictors of workplace embitterment

To date, only few studies have investigated the emotion of embitterment in the workplace\(^\text{11}\). As noted above, a strong belief that one has been unjustly and unfairly treated is a key belief in people who show feelings of embitterment. Therefore, implicit in the

\(^{11}\) See Chapter 2 for a summary of the studies
experience of workplace embitterment could be the perceived failure of organisational justice. In a recent study Sensky et al., (2015) provided some initial empirical support for the position that the experience of embitterment arises due to the perceived failure of organisational justice. However, Sensky et al. (2015) focused only on one aspect of organisational justice, that of procedural justice.

In the present study, Colquitt’s four-component model of organisational justice was applied; *distributive justice* (Leventhal, 1976), is communicated as the subjective perception of how fairly outcomes such as rewards have been distributed; *procedural justice* is communicated as how fairly the organisational systems/procedures have been used to allocate these outcomes (Leventhal, 1980; Thibaut & Walker, 1975); *interpersonal justice*, concerns how sensitively and fairly the information has been communicated to the employees (Greenberg, 1993a) and *informational justice*, is communicated as how explanatory the information given to employees was with regard to why a specific outcome happened (Greenberg, 1993a).

Over a period of time, perceptions of unfairness in the workplace may be considered a source of stress and contribute to workplace embitterment. Given that embitterment is triggered by events that are experienced as unjust (Linden, 2003), it seems plausible to consider perceived organisational injustice as a predictor of workplace embitterment.

*Hypothesis 1a:* Participants reporting lower levels of perceived procedural justice will report higher levels of workplace embitterment.

*Hypothesis 1b:* Participants reporting lower levels of perceived distributive justice will report higher levels of workplace embitterment.

*Hypothesis 1c:* Participants reporting lower levels of perceived interpersonal justice will report higher levels of workplace embitterment.
**Hypothesis 1d:** Participants reporting lower levels of perceived informational justice will report higher levels of workplace embitterment.

Dupré and Barling (2006), have considered over-controlling supervision as a form of organisational injustice. When subordinates perceive that their work performance is highly controlled by their supervisors they perceive this as a lack of respect, dignity and courtesy, and thus they are likely to experience organisational injustice (Tyler & Bies, 1990). Thus, the present study further examined whether workplace embitterment can be predicted by perceptions of over-controlling supervision. However, in the present study over-controlling supervision was not treated as a component of organisational injustice but as two discrete variables, due to the fact that over-controlling supervision refers precisely to the relationship between two parties (i.e. employee and supervisor) based on levels of control.

**Hypothesis 1e:** Participants reporting high levels of over-controlling supervision will report higher levels of workplace embitterment.

**Consequences of workplace embitterment**

With regards to what might be the consequences of embitterment in the workplace, the inability to adequately recover from work was examined. Work recovery is best understood as a dynamic process that revitalizes one’s energetic resources (Zijlstra et al., 2014). Inability to do so might lead to crucial consequences both on the individual’s job performance and well-being. In order to be able to recover after work, people have to physically and cognitively ‘switch-off’ from work. However, one of the main factors that prevents people from ‘unwinding’ after work is their inability to psychologically detach and disengage from work at the end of their working day (Etzion et al., 1998). Employees do not fully detach from their work unless they stop thinking of work-related issues in non-working time (Cropley et al., 2006; Rook & Zijlstra, 2006). Therefore, prolonged physiological
arousal and delayed recovery from work has been linked to individuals’ unintentional persistent thoughts in the absence of obvious external cues, termed as rumination (Roger & Jamieson, 1988). ‘Work-related’ rumination has therefore been conceptualised as a “proxy of insufficient recovery” (Cropley & Millward Purvis, 2003, p. 197).

As discussed in Chapter 2, Cropley and Zijlstra (2011), suggested a three-factor conceptualisation of work-related rumination and termed these as affective rumination, problem-solving pondering and detachment. ‘Affective rumination’ is described as a cognitive state characterised by the appearance of intrusive, pervasive, recurrent thoughts about work, resulting in a negative emotional response. By ruminating, psychophysiological arousal remains high, people remain emotionally and cognitively ‘switched on’ during non-work time, and thus the recovery process remains incomplete (Cropley & Zijlstra, 2011). Interestingly, Linden et al. (2007) supported that having intrusive thoughts is a dominant characteristic of embittered individuals, as in the case of embitterment individuals are frequently reminded of the insult and visually recollect the situation in which the insult was uttered. Thus, it seems plausible that workplace embitterment, although conceptually distinct, would nonetheless be related to affective rumination.

Employees might ruminate with a problem-solving focus, either in order to find the best solution to the encountered work-related problem, or re-evaluate their performance as an attempt to improve it. In this respect, ‘problem-solving pondering’ can be regarded as less damaging and even beneficial for the recovery process, as it does not involve psychological and physiological arousal (Cropley & Zijlstra, 2011). Although there is a clear conceptual differentiation between affective rumination and problem solving pondering — as these two types of rumination appear to operate differently in the recovery process — a reciprocal association between the two has been previously supported (Querstret & Cropley, 2012; Cropley & Zijlstra, 2011). This makes intuitive sense, as high affective ruminators may
engage in problem-solving strategies in order to find ways to resolve the cause of their stress; while affective rumination maybe triggered in those who are typically more problem-solving focused but get distressed by a frustrating problem they find it difficult to resolve. With regards to embittered individuals, it is possible that their post-work thoughts would not be characterised as having a problem-solving focus. According to Linden (2003), individuals who experience embitterment tend to feel hopeless and find no meaning in putting further effort into solving their ‘problem’, which in their case the ‘problem’ would be the perceived unjust, insulting event/person that got them into this negative state. Therefore, it seems plausible that embitterment would not be positively associated with problem-solving pondering, but would be negatively associated with this form of post-work thinking.

Finally, ‘detachment’ from work refers to an “individual’s sense of being away from the work situation” (Etzion et al. 1998, 579). Not only should employees abstain from work-related activities but most crucially detachment implies that an employee completely disengages mentally from work. As embittered individuals “recall the insulting event over and over again” (Linden, 20003, p.197) it is logical that workplace embitterment is an emotion that does not end by itself but goes on and on. Therefore, it is plausible that embittered individuals would not engage in the detachment form of ruminative thinking. Although they might not be physically present at work or the place/person related to the exceptional negative event that triggered the onset of embitterment, psychologically and mentally they might not be able to ‘switch-off’ and detach from it. Thus, the facilitation of adequate recovery process will be impaired.

Hypothesis 2a: Participants reporting high levels of workplace embitterment will report high levels of affective rumination.

Hypothesis 2b: Participants reporting high levels of workplace embitterment will report low levels of problem solving pondering.
Hypothesis 2c: Participants reporting high levels of workplace embitterment will report low levels of detachment.

The nature of the work can impact the unwinding process. Particularly, Cropley and Zijlstra (2011), argued that the more mentally or emotionally demanding the job is the higher the level of work-related rumination would be thus impairing the recovery process. An example of a highly demanding occupation would be teaching and medical professions. Indeed, studies have found that employees in such professions do struggle to mentally ‘switch-off’ post work (Cropley & Millward Purvis, 2003; Cropley et al., 2006; Gorter, 2005). Additionally, data drawn from the Adult Psychiatric Morbidity Survey 2007 (APMS 2007; McManus, Meltzer, Brugha, Bebbington, & Jenkins, 2009) reveals that the socio demographic makeup of occupations is associated with work related rumination. Findings revealed that Professional workers (those in socio demographic makeup I) reported higher levels of work-related rumination compared to unskilled workers (those in socio demographic makeup V).

However, Cropley and Zijlstra (2011) further argued that it might not be the occupation of the employee that makes people ruminate, but a problematic work situation can foster rumination and impact the unwinding process. For instance, when employees perceive injustice at their work, or when they have problems with colleagues or their supervisor (in the present study having an over-controlling supervisor), this makes the work environment problematic and possibly employees would start to ruminate about these problematic issues and thus their recovery process would be impaired. It seems highly plausible therefore, that embitterment could act as a mediator between organisational injustice and work-related rumination. Organisational injustice is undoubtedly a problematic issue of the work environment, which could evoke the feeling of workplace embitterment. In turn, the feeling of embitterment raised by this problematic work environment impairs the recovery process,
as embittered workers are likely to ruminate and fail to adequately psychologically detach from work. Organisational injustice and/or over-controlling supervision could positively relate to feelings of embitterment, resulting in affective rumination – thus impairing employees’ ability to recover from work.

*Hypothesis 3a:* Workplace embitterment will mediate the relationship between procedural injustice and affective rumination.

*Hypothesis 3b:* Workplace embitterment will mediate the relationship between distributive injustice and affective rumination.

*Hypothesis 3c:* Workplace embitterment will mediate the relationship between interpersonal injustice and affective rumination.

*Hypothesis 3d:* Workplace embitterment will mediate the relationship between informational injustice and affective rumination.

*Hypothesis 3e:* Workplace embitterment will mediate the relationship between supervisory control and affective rumination.

### 3.2. Method

#### 3.2.1. Ethical approval

Ethical approval was granted by the University of Surrey Ethics Committee (ethics approval reference: UEC/2015/024/FAHS; see Appendix C). A risk assessment was carried out and ethical considerations for participants included: the right to withdraw from the study up to the point of completing the online survey, ensuring participant’s confidentiality and that their answers will not be shared with their employers, managers or supervisors, ensuring that participants had adequate information and time to make an informed decision about taking part in the study, and finally the very slight potential risk for minor psychological distress to
be induced because of the context of some statements that participants were asked to rate in the survey.

3.2.2. Design

Participants completed an online cross-sectional survey. The variables collected were (1) organisational justice perceptions as indicated by Colquitt’s (2001) four dimensional organisation justice measure, (2) perceived supervisory control over work performance (Dupré & Barling, 2006), (3) embitterment levels as indicated by scores on the Post Traumatic Embitterment Disorder self-rating scale (PTED; Linden et al., 2009) and (4) work-related rumination as indicated by the Work-related rumination Questionnaire (WRPQ; Cropley, Michalianou, Pravettoni, & Millward, 2012). Background data such as age, gender, work status, etc., were also collected.

3.2.3. Procedure

Recruitment of participants. As a first step a link to the survey was forwarded to personal acquaintances of the researcher through email. Details of the study and a link to the survey were also posted on social and professional networking sites (e.g. LinkedIn) to encourage participation of working adults. A contact email address was provided on all communications and advertising, and once prospective participants expressed their interest in taking part they were emailed a detailed information sheet explaining them the nature of the study and specifying that the study was assessing how employees’ work-related justice perceptions relate to their feelings about work and in turn how these feelings impact their ability to unwind after work. Individuals who chose to participate were encouraged to forward the link to other colleagues who were over the age of 18 and working, without however discussing the nature of this study with anyone as it was vital that future participants were unaware of the research question. This sampling technique, were existing sampling subjects circulate the
study to their acquaintances, is known as “snowballing” effect and is used as a means to increase participation (Winwood, Bakker, & Winefield, 2007). In order to recruit more participants HR managers of organisations were approached and after explaining briefly the nature and purpose of the study they were asked to invite their staff to take part in the study. Those who agreed to take part were sent a link to the online survey. Participants were given an information sheet which informed them at the outset about the purpose of the study. Finally, it was made clear to the participants that the information they provided would not be shared with their employers or supervisors but only the two researchers involved would have access to their responses.

**Online survey.** The study took place online with participants accessing the study from their own home or other location of their choice. The Qualtrics Web-based survey software was used for developing the online survey. Participants were presented with an online information sheet, and if they were happy to proceed with the study they were asked to tick a box to signal their consent to take part in the study. Afterwards, participants were asked to answer a short demographic questionnaire comprising questions on background information such as age, gender, etc. and other control variables such as job demands etc. Participants’ perceptions on organisational justice as well as their supervisor’s control over their work performance were measured using the Organisational justice perceptions measure (Colquitt, 2001) and the supervisory control over work performance scale (Dupré & Barling, 2006). Participants were then presented with the 19 items of the PTED scale and were asked to rate to what extent each statement applies to them (0 = *not at all true* to 4 = *extremely true*). Next participants’ work related rumination was assessed by using the Work-related rumination questionnaire developed by Cropley et al., (2012). In order to mitigate against any adverse effects, participants were engaged in a ‘mood repair’ at the end of the study, in which they
were asked to list three things that have made them happy recently. Finally, participants were presented with a debriefing statement. The study took approximately 20 minutes to complete.

**Pilot study**

Before circulating the survey link, a pilot study was run with 10 participants to ensure that there were no flaws in the survey and that all questions were clear and understandable. The pilot study also allowed the researcher to assure that the survey did not take longer than 20 minutes to complete.

**Sample size and Participant details**

Three hundred and thirty-seven (N = 337) employees (Male = 26.1% [88], Females = 73.9% [249]) from a wide range of occupations took part in the online study. The rationale for this was to promote the likelihood of securing a relatively generic sample of employees rather than a sample from a specific occupational background. The age range of participants was between 20-70 years (M = 36.87, SD = 12.37). The majority of participants (78.6% [265]) worked full-time. A hundred sixty-two participants (48.1%) worked on average 31-40 hours per week, 100 participants (29.7%) worked 41-50 hours per week, 30 participants (8.9%) worked 21-30 hours per week, 24 participants (7.1 %) worked 51-60 hours per week, 16 participants (4.7%) worked 10-20 hours per week and 5 participants (1.5%) worked more than 61 hours per week. Participants from teaching and education related occupations represented 20.8% (70) of the sample, followed by healthcare services (18.1% [61]), research/science (16.3% [55]), other (11.3%, [38]), business, consulting and management (7.4% [25]), accounting, banking and finance (5% [17]), sales (4.2% [14]), recruitment and HR (3.9% [13]), information technology (3.9% [13]), engineering and manufacturing (3.9% [13]), social care services (3% [10]), hospitality (2.7% [9]), marketing, advertising and PR (2.4% [8]), energy and utilities (2.4% [8]), legal services (2.1% [7]), charity and voluntary
work (1.8% [6]), creative arts and design (1.5% [5]), leisure, sports and tourism (1.2% [4]), transport and logistics (1.2% [4]), media and publishing (.9% [3]), property and construction (.6% [2]), environment and agriculture (.6% [2]), and retail (.3% [1]). Two hundred fifty-five participants (75.7%) worked a traditional 9am-5pm (Monday to Friday) pattern, 58 participants (17.2%) worked nonstandard shifts, 19 participants (5.6%) worked rotating shifts and the remaining 5 participants (1.5%) worked either weekend or night shifts. Only 69 participants (20.5%) reported having dependent children under the age of 18 currently living in their household. Interesting, more than half of the participants (75%, N = 252) scored above 1.6 on the embitterment scale, indicating that the majority of participants were embittered (Linden et al., 2009).

3.2.4. Measures

Organisational Justice Perceptions (Colquitt, 2001). Organisational justice perceptions were measured using the four-dimensional measure; distributive, procedural, interpersonal and informational, created and validated by Colquitt (2001). Procedural justice items referred to the procedures used to arrive at the employees’ outcome (e.g. pay, promotions, etc.) and it was measured with seven items (e.g. “Have you been able to express your views and feelings during those procedures?”). Distributive justice items referred in general to the employees’ outcomes and it was measured using four items (e.g. “Does your outcome for example pay, promotions, etc., reflect the effort you have put into your work?”). Interpersonal justice was measured with four items, in reference to the individual who enacted the procedure, in this case the employees’ supervisor (e.g. “Has he/she treated you with respect?”). Finally, informational justice, again in reference to the individual who enacted the procedure, was measured with five items (e.g. “Has he/she explained the procedures thoroughly?”). This measure has been widely used in many studies (e.g. Judge &
Colquitt, 2004; Saks, 2006). Colquitt (2001) supported the high reliability of each scale; $\alpha = .93$ for procedural justice items, $\alpha = .93$ for distributive justice items, $\alpha = .92$ for interpersonal justice items and $\alpha = .90$ for informational justice items. By conducting Confirmatory Factor analysis of the measure, Colquitt (2001) as well as Judge and Colquitt (2004) supported that indeed the best fitting model for organisational justice is the four-factor model. Respondents were asked to rate each statement on a 5-point scale (1 = to a small extent to 5 = to a large extent). Cronbach’s $\alpha$ values for the present study were .87 (procedural justice), .93 (distributive justice), .87 (interpersonal justice) and .91 (informational justice). The full 20-item scale is presented in Appendix D.

**Supervisory control over work performance scale** (Dupré & Barling, 2006). This scale is composed by 8 items and aims at assessing employees’ perceptions of supervisory control over employees’ work performance (i.e., behaviours that constrain or limit). An item representative to this scale is, “My supervisor does not give me the freedom to do things that I want to do in my work” (Appendix E). Respondents were asked to rate on a 7-point scale (1 = strongly disagree to 7 = strongly agree) the extent to which they agree or disagree with each statement. Dupré and Barling (2006) have reported a Cronbach’s $\alpha = .81$ for these 8 items. Cronbach’s $\alpha$ value for the present study was .86.

**Post-traumatic embitterment disorder Self-Rating Scale** (PTED scale; Linden et al., 2009). The PTED scale is composed by 19 items and aims at assessing the features of embitterment reactions in the aftermath of negative life events (Appendix B). Respondents were initially instructed to “please read the following statements and indicate to what degree they apply to you”. As the present study is exploring embitterment in the workplace additional instructions asked respondents to “please focus only on your experience at work” (Sensky, 2010). The questionnaire then started by the line “I have experienced one or more distressing events at work…” and was then followed by 19 individual statements such as
“…that I see as very unjust and unfair”. Participants were asked to indicate for each item on a 5-point scale to what degree the statement applies for them (0 = not at all true to 4 = extremely true). Linden et al., (2009) reported a high reliability of .93 for the PTED scale. PTED scale has been previously used in occupational settings demonstrating high reliability of .96 (Dunn & Sensky, in press). A mean total score of ≥ 1.6 on the PTED scale indicates the presence of embitterment. In this respect, embitterment is understood as a dimensional phenomenon and the PTED scale can be used to screen for “reactive embitterment as well as to measure severity” (Linden et al., 2009, p.146). Cronbach’s α value for the present study was .96.

**Work-related rumination Questionnaire** (WRPQ; Cropley et al., 2012). WRPQ is a 15 item self-report measure designed to assess how people think about work (Appendix F). These items include measures of three subscales of perseverative or ruminative thinking; affective rumination, problem solving pondering and detachment. Respondents were instructed to rate on a 5-point scale (1 = very seldom or never, 2 = seldom, 3 = sometimes, 4 = often, 5 = very often or always), the relative frequency they engage in each of the different subscales of ruminative thinking. The affective rumination subscale is associated with the emotional experience of being unable to switch from work-related thoughts and includes 5 items such as “Do you become tense when you think about work-related issues during your free time?”. Included in the problem-solving pondering subscale are 5 items that relate to how individuals think, ponder, and reflect about work-related issues when not at work such as, “After work I tend to think on how I can improve my work-related performance”. The final subscale of detachment is associated with the respondent’s ability and how easy they find it to switch-off and leave work behind. An item representative to this subscale is, “Do you feel unable to switch off from work?”. This scale has been used in several studies (e.g. Hamesch, Cropley, & Lang, 2014). High reliability has also been found for each subscale;
α = .90 for affective rumination, α = .82 for problem-solving pondering and α = .86 for detachment (Cropley et al., 2012). Cronbach’s α values for the present study were .93 (affective rumination), .87 (problem-solving pondering) and .84 (detachment).

**Control variables** (Appendix G)

Single items were included in the survey in order to control for demographic data that could possible impact the relationship between organisational justice, embitterment and work-related rumination.

*Age* was controlled as older people may find it more difficult to recover from work as they might not be able to engage in active recovery process as compared to younger employees. Also, older people might not ruminate that much as compared to younger people. *Gender* (1 = female, 2 = male) was also included as a control variable as women tend to unwind slower after work because of the demands they experience from duties at home, that are often in conflict with their actual paid job demands (Frankenhaeuser et al., 1989). Having *dependent children* (1 = yes, 2 = no) was additionally controlled as working mothers or fathers may differ in their ability to properly recover when not at work due to their child care duties. *Hours worked per week,* *work pattern* (1 = 9:00 to 17:00 [Mon-Fri], 2 = rotating shifts, 3 = nonstandard shifts, 4 = nights/weekend work) and *work status* (1 = full time, 2 = part time, 3 = temporary worker, 4 = self-employed) may impact the relationship between embitterment and organisational justice. Working full time and longer hours might have an influence over the way employees value organisational justice at work and potentially may influence the feeling of embitterment. A temporary worker or a part-time worker might not value the importance of organisational justice the same way a full-time worker does.

*Negative Affect* (NA; Watson & Clark, 1984) reflects persistent individual differences in negative emotionality and self-concept. Individuals who show high negative affectivity are more vulnerable to greater distress and dissatisfaction, are more thoughtful on their failures,
focus in a greater extent on the negative side of the world and thus hold a less favourable self-view and are dissatisfied with themselves and life (Watson & Clark, 1984). Negative affect therefore could possibly bias responses in the survey (Brief, Burke, George, Robinson, & Webster, 1988) and influence how employees judge the way they perceive organisational justice in their work context as well as their level of embitterment. Dodek and Barnow’s (2011) findings have indeed supported that negative emotions such as hostility, anger and irritability are positively related to embitterment. Specifically, they found that 60% of the individuals who felt embittered reported that they were often or very often angry within the last month. For these reasons, NA as well as Positive Affect (PA) were included as control variables. NA was assessed using the 10 measures of Negative Affect and PA was assessed using the 10 measures of Positive Affect, both from the PANAS scale (Watson, Clark, & Tellegen, 1988). The PANAS is a widely used scale that has been validated in occupational health settings (Kortte, Gilbert, Gorman, & Wegener, 2010). Measures were single words denoting different emotions related to NA and PA such as nervous and excited. Respondents were asked to read the 20 single words and indicate to what extent they felt this way during the past month, against a 5-point scale (1 = very slightly or not at all to 5 = extremely). A total score for NA and PA is revealed, with higher scores representing greater affect.

*Job demands & Social support in the workplace*

Finally, the present study further controlled for other measurable variables related to characteristics of the workplace; job demands and social support, that based on the existing research, could impact the relationship between organisational justice, embitterment and rumination. At the heart of the demand/control model lies the assumption that psychological complaints occur when the psychological job demands are high and employees’ job control is low (de Lange, Taris, Kompier, Houtman, & Bongers, 2003). *Job demands* refer to the psychological, social and organisational aspects for the job that require sustained
psychological effort and are therefore related with certain psychological costs (Karasek et al., 1998). Examples of such aspects are role overload and high work pressure. In the context of organisational justice, employees might perceive high job demands as a form of distributive injustice possessing the risk of feeling embittered. According to Kinnunen et al.’s (2011) JD-R-R model job demands inhibit recovery. Exposure to high job demands (e.g. high work load) may impose the risk that an individual ruminates about his/her work after his working day is over (Cropley & Millward, 2003), that necessarily means that the individual is unable to psychologically detach from work. Therefore, job demands were controlled for, in order to gain a clearer picture on the relationship between organisational injustice, embitterment and recovery from work. Perceived job demands were measured using nine items from the Job Content Questionnaire (JCQ; Karasek et al., 1998). These items refer to the quantitative, demanding aspects of the job (e.g. working hard). A sample item is “Do you have to work really hard?”. Respondents were instructed to rate each statement on a 4 point-scale (1 = never/almost never to 4 = often). Higher scores indicate high job demands. Cronbach’s α value for the present study was .73.

Sufficient workplace social support has been found to reduce the impact of stressors on employees (Griffith, Steptoe, & Cropley, 1999). Low social support can imply poor relationships with co-workers and a non-harmonious atmosphere at work. This consequently leads to increased impact of stress and could potentially impact employees’ perceptions on organisational justice as well as levels of embitterment. A study conducted by Undén, Orth-Gomér, and Elofsson, (1991) has further supported that unsatisfactory workplace social support, in terms of unpleasant working environment, poor group cohesion and low quality of the relationships between co-workers, is related to higher systolic blood pressure, which might increase the risk of coronary heart disease. Undén et al., (1991) found that the effect of poor workplace social support was maintained not only during working hours but most
importantly during leisure time and rest.

Lower levels of social support might have a prolonged effect on employees’ ability to unwind after work, as they ruminate and hold on thoughts and feelings caused by poor support at their work environment. Therefore, measures of social support within the workplace were also included. A five-item scale developed by Undén et al., (1991) was used, including items such as “There is a good cohesion at the workplace”, in order to measure participants’ perceived workplace social support, in terms of relationship with colleagues and in general the atmosphere at work. However, only four of the five items were used in the present study as the first item “I have a good relationship with my supervisor” was measured with the Supervisory control over work performance scale (Dupré & Barling, 2006). Each item was responded to on a four-point scale (1 = strongly disagree to 4 = strongly agree). Cronbach’s α value for the present study was .78.

3.3. Results

3.3.1. Data Analysis

Data analysis will be presented in four sections. In the first section (3.3.2) mean and standard deviation for all study and control variables are presented. In the second section (3.3.3) correlation analysis on the main study variables and control variables were conducted. All correlations are presented in the correlation matrix (Table 3.2). The third section (3.3.4) presents multiple regression models testing whether distributive justice, procedural justice, interpersonal justice, informational justice and supervisory control are significant predictors of embitterment, and also whether embitterment is a significant predictor of affective-rumination, problem solving pondering and detachment respectively. All regression models controlled for the effect of the significant control variables. Finally, the fourth section (3.3.5) presents a series of mediation models for the effect of embitterment in the relationship between organisational injustice (procedural, distributive, informational and interpersonal),
supervisory control and affective rumination using Haye’s (2013) PROCESS custom dialog box.

To begin with—before any data analysis was conducted—an explanatory factor analysis was conducted on the 19 items of the PTED scale with oblique rotation (oblimin rotation) in order to identify any factors included in the PTED scale. The Kaiser-Meyer-Olkin measure verified the sampling adequacy for the analysis, KMO = .95. An initial analysis was run to obtain eigenvalues for each factor in the data. Only one factor had eigenvalues over Kaiser’s criterion of 1 and explained 55.94% of the variance. The scree plot showed an inflexion that would justify retaining only one factor. Therefore, a total score of the PTED scale was used to measure workplace embitterment.

### 3.3.2. Descriptive statistics

The correlation and multiple regression analyses were performed using IBM SPSS Statistics 21 and the mediation analyses were performed using the dialog box PROCESS (Hayes, 2013) on SPSS. Initially, the data was tested for the presence of outliers and normality (Field, 2009). Because of the relatively big sample size (N = 337), statistical tests of normality were not appropriate. However, normal distribution was confirmed by visually reviewing histograms for all variables. Normality was also confirmed by reviewing the distribution of residuals for the dependent variables (embitterment, affective rumination, problem-solving pondering and detachment) when running the multiple regression models. Mean and standard deviations for all study variables (i.e. procedural justice, distributive justice, interpersonal justice, informational justice, supervisory control, embitterment, affective rumination, problem-solving pondering, and detachment) are presented in Table 3.1.
Table 3.1

*Mean and Standard deviations for all study variables*

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<td>4b.Problem-solving pondering</td>
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<td>4c.Detachment</td>
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*Note.* Study variables: 1 = organisational justice (OJP measure); 2 = supervisory control (SCOWP scale); 3 = embitterment (PTED scale); 4 = work-related rumination (WRRQ scale).
3.3.3. Correlation Analysis

Correlation analysis was completed by using Pearson’s $r$ correlation coefficient. As can be viewed in the correlation matrix (Table 3.2), the relationship among procedural justice, distributive justice, interpersonal justice, informational justice, supervisory control, embitterment, affective rumination, and detachment were all significant and in the direction predicted by the hypothesis. All concepts of organisational justice correlated negatively with embitterment (Hypothesis 1a, 1b, 1c, 1d), supervisory control correlated positively with embitterment (Hypothesis 1e), affective rumination correlated positively with embitterment (Hypothesis 2a) and detachment correlated negatively with embitterment (Hypothesis 2c). The significant positive correlation between problem-solving pondering and embitterment was not in the direction predicted by hypothesis 2b. Identification of potential confounds was undertaken by reviewing the correlations between the proposed control variables (gender, age, dependent children, hours worked per week, years in current job, NA, PA, job demands, social support) and each outcome variables; embitterment for hypothesis 1 and affective rumination, problem solving pondering and detachment for hypothesis 2a, 2b, 2c respectively. For hypothesis 1 gender, hours worked per week, years in current role, NA, PA and social support significantly correlated with the outcome variable — embitterment, thus were controlled in further analyses. For hypothesis 2a, gender, hours worked per week, NA, PA and social support significantly correlated with the outcome variable — affective rumination, therefore were controlled in further analyses. For hypothesis 2b hours worked per week, job demands, NA, PA and social support significantly correlated with the outcome variable — problem-solving pondering, thus were controlled in further analyses. Finally, for hypothesis 2c hours worked per week, job demands, NA, PA, social support and years in current role correlated significantly with the outcome variable — detachment, thus were controlled for further analyses.
Table 3.2

Zero-order Correlations for all study variables

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<td>-.13**</td>
<td>-.01</td>
<td>-.11**</td>
<td>-.05</td>
<td>-.09</td>
<td>.12*</td>
<td>.22**</td>
<td>.36**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DET</td>
<td>-.02</td>
<td>-.09</td>
<td>.17**</td>
<td>-.29**</td>
<td>-.14**</td>
<td>-.37**</td>
<td>.16**</td>
<td>-.22**</td>
<td>.36**</td>
<td>.17**</td>
<td>.23**</td>
<td>.15**</td>
<td>.25**</td>
<td>-.16**</td>
<td>-.42**</td>
<td>-.57**</td>
<td>-.47**</td>
<td></td>
</tr>
</tbody>
</table>

Note. Control variables: Gender (1 = male; 2 = female), age, dependent children, hours worked per week, years in current job, NA, PA, JD = job demands, SSUP = social support. Study variables: PRO = procedural justice, DIS = distributive justice, INT = interpersonal justice, INF = informational justice, SUP = supervisory control, EMB = embitterment, AFR = affective rumination, PSP = problem-solving pondering, DET = detachment.

*p < .05, **p < .01
3.3.4. Multiple regression analyses

Hypothesis 1a-1e & 2a-2c were tested using multiple regression analyses.

**Hypothesis 1 (embitterment as outcome)**

Control variables (gender, hours worked per week, years in current role, NA, PA, social support) were entered in model 1 and the predictor variables (distributive justice, procedural justice, interpersonal justice, informational justice and supervisory control) were entered in model 2. The results for embitterment are displayed in Table 3.3. To test multicollinearity, variance inflation factor (VIF) and tolerance statistics were assessed and all variables were within acceptable limits (i.e., VIF < 10; tolerance > 1; Field, 2009); thus, multicollinearity did not bias the regression models.

Table 3.3 shows that the control variables accounted for 54.9% of the variance in embitterment. The model as a whole (including both control variables and predictors) explains 60.4% variability in embitterment. The predictor variables explain an additional 6.1% in the variance of the outcome even when the control variables (gender, hours worked per week, years in current role, NA, PA, social support) have been statistically controlled for. From the predictor variables entered in model 2 only supervisory control (2.5% of the unique variance) and procedural justice (0.7 % of the unique variance) contributed significantly to the prediction of embitterment.
### Table 3.3

*Results From Multiple Regression Analysis Predicting Embitterment*

<table>
<thead>
<tr>
<th></th>
<th>Model 1</th>
<th></th>
<th></th>
<th>Model 2</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>β</td>
<td>t</td>
<td></td>
<td>β</td>
<td>t</td>
<td></td>
</tr>
<tr>
<td>1. Gender</td>
<td>.082</td>
<td>2.156*</td>
<td></td>
<td>.068</td>
<td>1.905</td>
<td></td>
</tr>
<tr>
<td>2. Hours worked per week</td>
<td>.130</td>
<td>3.416*</td>
<td></td>
<td>.126</td>
<td>3.508*</td>
<td></td>
</tr>
<tr>
<td>3. Years in current role</td>
<td>.134</td>
<td>3.649**</td>
<td></td>
<td>.157</td>
<td>4.294**</td>
<td></td>
</tr>
<tr>
<td>4. NA</td>
<td>.405</td>
<td>9.792**</td>
<td></td>
<td>.342</td>
<td>8.511**</td>
<td></td>
</tr>
<tr>
<td>5. PA</td>
<td>-.111</td>
<td>-2.764*</td>
<td></td>
<td>-.091</td>
<td>-2.376*</td>
<td></td>
</tr>
<tr>
<td>6. Social support</td>
<td>-.374</td>
<td>-8.973**</td>
<td></td>
<td>-.264</td>
<td>-6.196**</td>
<td></td>
</tr>
<tr>
<td>7. Procedural justice</td>
<td></td>
<td></td>
<td></td>
<td>-.118</td>
<td>-2.401*</td>
<td></td>
</tr>
<tr>
<td>8. Distributive justice</td>
<td></td>
<td>.018</td>
<td>.428</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Informational justice</td>
<td></td>
<td>-.088</td>
<td>-1.839</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Interpersonal justice</td>
<td></td>
<td>-.007</td>
<td>-.140</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. Supervisory control</td>
<td></td>
<td>.186</td>
<td>4.577**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adjusted $R^2$</td>
<td></td>
<td>.549</td>
<td></td>
<td></td>
<td>.603</td>
<td></td>
</tr>
<tr>
<td>$F$</td>
<td></td>
<td>69.122**</td>
<td></td>
<td></td>
<td>47.423**</td>
<td></td>
</tr>
<tr>
<td>$\Delta R^2$</td>
<td></td>
<td>.557</td>
<td></td>
<td></td>
<td>.059</td>
<td></td>
</tr>
</tbody>
</table>

*Note. Control variables: 1 = Gender, 2 = hours worked per week, 3 = years in current role, 4 = NA, 5 = PA, 6 = social support. Study measures: 7 = Procedural justice, 8 = Distributive justice, 9 = Informational justice, 10 = Interpersonal justice, 11 = Supervisory control. *$p < .05$. **$p < .001$*
Hypothesis 2a (affective rumination as outcome)

Control variables (gender, hours worked per week, NA, PA, social support) were entered in model 1 and the predictor variables (embitterment) were entered in model 2. The results for affective rumination are displayed in Table 3.4. To test multicollinearity, variance inflation factor (VIF) and tolerance statistics were assessed and all variables were within acceptable limits (i.e., VIF < 10; tolerance > 1; Field, 2009); thus, multicollinearity did not bias the regression models.

Table 3.4 shows that the control variables accounted for 49.1% of the variance in affective rumination. The model as a whole (including both control variables and predictors) explains 55.2% variability in affective rumination. The predictor variables explain an additional 6% in the variance of the outcome even when the control variables (gender, hours worked per week, NA, PA, social support) have been statistically controlled for. The control variables were statistically significant predictors. The predictor variable embitterment (6 % of the unique variance) entered in model 2 contributed significantly to the prediction of affective rumination.
Table 3.4

Results From Multiple Regression Analysis Predicting Affective Rumination

<table>
<thead>
<tr>
<th></th>
<th>Model 1</th>
<th></th>
<th>Model 2</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$\beta$</td>
<td>$t$</td>
<td>$\beta$</td>
<td>$t$</td>
</tr>
<tr>
<td>1. Gender</td>
<td>.149</td>
<td>3.685**</td>
<td>.120</td>
<td>3.144*</td>
</tr>
<tr>
<td>2. Hours worked per week</td>
<td>.259</td>
<td>6.350**</td>
<td>.209</td>
<td>5.370**</td>
</tr>
<tr>
<td>3. NA</td>
<td>.401</td>
<td>9.043**</td>
<td>.255</td>
<td>5.421**</td>
</tr>
<tr>
<td>4. PA</td>
<td>-.138</td>
<td>-3.218**</td>
<td>-.097</td>
<td>-2.390*</td>
</tr>
<tr>
<td>5. Social support</td>
<td>-.248</td>
<td>-5.558**</td>
<td>-.110</td>
<td>-2.362*</td>
</tr>
<tr>
<td>6. Embitterment</td>
<td></td>
<td>.365</td>
<td></td>
<td>6.730**</td>
</tr>
<tr>
<td>Adjusted $R^2$</td>
<td></td>
<td>.482</td>
<td></td>
<td>.543</td>
</tr>
<tr>
<td>$F$</td>
<td></td>
<td>63.589**</td>
<td></td>
<td>67.632**</td>
</tr>
<tr>
<td>$\Delta R^2$</td>
<td></td>
<td>.490</td>
<td></td>
<td>.062</td>
</tr>
</tbody>
</table>

Note. Control variables: 1 = Gender, 2 = hours worked per week, 3 = NA, 4 = PA, 5 = social support. Study measures: 6 = Embitterment. *$p < .05$. **$p < .001$
**Hypothesis 2b (problem solving pondering as outcome)**

Control variables (hours worked per week, job demands, NA, PA, social support) were entered in model 1 and the predictor variables (embitterment) were entered in model 2. The results for problem solving pondering are displayed in Table 3.5. To test multicollinearity, variance inflammation factor (VIF) and tolerance statistics were assessed and all variables were within acceptable limits (i.e., VIF < 10; tolerance > 1; Field, 2009); thus multicollinearity did not bias the regression models.

Table 3.5, shows that the control variables accounted for 21.4% of the variance in problem-solving pondering. The model as a whole (including both control variables and predictors) explains 21.8% variability in problem solving pondering. The predictor variables explain an additional 0.6% in the variance of the outcome even when the control variables (hours worked per week, job demands, NA, PA, social support) have been statistically controlled for. With the exception of social support, the remaining control variables were significant predictors. The predictor variable embitterment entered in model 2 did not contribute significantly to the prediction of problem solving pondering.

**Hypothesis 2c (detachment as outcome)**

Control variables (hours worked per week, job demands, NA, PA, social support, years in current role) were entered in model 1 and the predictor variable (embitterment) was entered in model 2. The results for detachment are displayed in Table 3.6. To test multicollinearity, variance inflammation factor (VIF) and tolerance statistics were assessed and all variables were within acceptable limits (i.e., VIF < 10; tolerance > 1; Field, 2009); thus, multicollinearity did not bias the regression models.

Table 3.6, shows that the control variables accounted for 29.6% of the variance in detachment. The model as a whole (including both control variables and predictors) explains
30.3% variability in detachment. The predictor variables explain an additional 0.9% in the variance of the outcome even when the control variables (hours worked per week, job demands, NA, PA, social support, years in current role) have been statistically controlled for. With the exception of years worked in current role and PA the remaining control variables were significant predictors. The predictor variable embitterment (0.7% of the unique variance) entered in model 2 did contribute significantly to the prediction of detachment.

Table 3.5

Results From Multiple Regression Analysis Predicting Problem-Solving Pondering

<table>
<thead>
<tr>
<th>Model 1</th>
<th>Model 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>β</td>
<td>t</td>
</tr>
<tr>
<td>1. Hours worked per week</td>
<td>.142</td>
</tr>
<tr>
<td>2. NA</td>
<td>.252</td>
</tr>
<tr>
<td>3. PA</td>
<td>.170</td>
</tr>
<tr>
<td>4. Job demands</td>
<td>.265</td>
</tr>
<tr>
<td>5. Social support</td>
<td>-.091</td>
</tr>
<tr>
<td>6. Embitterment</td>
<td></td>
</tr>
</tbody>
</table>

Adjusted $R^2$ | .214 | .218 |

$F$ | 19.315** | 16.604** |

$\Delta R^2$ | .226 | .006 |

Note. Control variables: 1 = hours worked per week, 2 = NA, 3 = PA, 4 = Job demands, 5 = social support. Study measures: 6 = Embitterment. *$p < .05$. **$p < .001$
Table 3.6

*Results From Multiple Regression Analysis Predicting Detachment*

<table>
<thead>
<tr>
<th></th>
<th>Model 1</th>
<th>Model 2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>β</td>
<td>t</td>
</tr>
<tr>
<td>1. Hours worked per week</td>
<td>-.218</td>
<td>-4.621**</td>
</tr>
<tr>
<td>2. Years worked in current role</td>
<td>-.104</td>
<td>-2.243*</td>
</tr>
<tr>
<td>3. PA</td>
<td>.088</td>
<td>1.665</td>
</tr>
<tr>
<td>4. NA</td>
<td>-.234</td>
<td>-4.521**</td>
</tr>
<tr>
<td>5. Job demands</td>
<td>-.206</td>
<td>-4.085**</td>
</tr>
<tr>
<td>6. Social support</td>
<td>.230</td>
<td>4.430**</td>
</tr>
<tr>
<td>7. Embitterment</td>
<td></td>
<td>-.138</td>
</tr>
<tr>
<td>Adjusted $R^2$</td>
<td>.296</td>
<td>.303</td>
</tr>
<tr>
<td>$F$</td>
<td>24.575**</td>
<td>21.859**</td>
</tr>
<tr>
<td>$\Delta R^2$</td>
<td>.309</td>
<td>.009</td>
</tr>
</tbody>
</table>

Note. Control variables: 1 = hours worked per week, 2 = years worked in current role, 3 = PA, 4 = NA, 5 = Job demands, 6 = social support. Study measures: 7 = Embitterment. *p < .05. **p < .001
3.3.5. Multiple mediation models for the effect of workplace embitterment in the relationship between organisational injustice (procedural, distributive, informational and interpersonal), supervisory control and affective rumination.

The multiple regression analyses revealed that workplace embitterment (6% of the unique variance) significantly predicted affective rumination. In order to test whether the feeling of embitterment mediates the relationship between organisational injustice and affective rumination, mediation analysis was completed by using the PROCESS custom dialog box developed by Andrew Hayes (2013). This versatile tool enables the implementation of complex mediation analyses. It generates direct and indirect effects in mediation models and can construct bootstrap confidence intervals for indirect effects (Hayes, 2013). This bootstrapping approach is considered advantageous over previous methods because of increased reliability of findings (Hayes, 2013). The analyses were based on 5000\(^{12}\) bootstrapped samples using bias-corrected 95% confidence intervals.

An additional reason for why PROCESS macro was used for the mediation analysis, is that it enables for the control of covariates. Given that a mediation model is a causal model, this runs the risk of reaching unequivocal causal claims about the effect of the predictor variable (X) on the mediator (M) and the total effects of the predictor on the outcome variable (Y). The antecedents of this risk are based on a phenomenon that Hayes (2013) termed as epiphenomenal associations. That is, the association between the mediator, in this case embitterment (M), and the outcome variable, in this case, affective rumination (Y), may be an epiphenomenon of the fact that the predictor variable (e.g. procedural injustice; X) affects some other variable.

\(^{12}\) According to Hayes (2013), 5,000 bootstrap samples is sufficient enough in most applications. There is quite little added value to increasing it above 10,000.
not in the model, and that other variable (e.g. lack of social support) affects affective 
rumination (Y), but because embitterment (M) is correlated with that other variable, it 
appears that embitterment (M) is the variable through which procedural injustice’s 
(X’s) effect on affective rumination (Y) is carried. Epiphenomenal association is a 
serious threat to the validity of the causal inference one makes from a mediation 
analysis (Hayes, 2013), therefore all mediation analyses were run initially including 
the covariates and then without any covariates. As the presence of covariates did not 
made any actual difference in the results (the coefficients were of similar magnitude 
and the significance of pathways was unaffected), the findings from the mediation 
analyses without accounting for covariates are reported below.

**Mediation analysis: Procedural injustice as predictor.**

The mediation analysis showed that procedural injustice indirectly influenced 
affective rumination through its effect on embitterment. As can been seen in Figure 
3.1. and Table 3.7, perceptions of procedural injustice was significantly and positively 
correlated with embitterment (\(a_1\)) which was associated with a subsequent increase in 
affective rumination (\(b_1\)). A bias-corrected bootstrap confidence interval for the 
indirect effect of embitterment (\(ab_1 = 0.2683\)), based on 5,000 bootstrap samples was 
entirely above zero (95% CI [0.2010, 0.3467]); thus, this was a significant effect. 
There was no evidence that procedural injustice influenced affective rumination 
independent of its effect on embitterment because the direct pathway (\(c_1 = 0.076;\) 
Figure 3.1) was not statistically significant. These results represent a total mediation 
effect of perceptions of procedural injustice through embitterment for its effect on 
affective rumination.
Figure 3.1. Statistical diagram of the mediation model for the effect of embitterment in the relationship between procedural injustice and affective rumination.

Table 3.7

Model coefficients for mediation analysis of affective rumination (Procedural injustice as predictor)

<table>
<thead>
<tr>
<th></th>
<th>M (Embitterment)</th>
<th>Y(AR)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Coeff.</td>
<td>SE</td>
</tr>
<tr>
<td>X(PRO) a₁</td>
<td>1.5067</td>
<td>0.1456</td>
</tr>
<tr>
<td>M₁(EMB) b₁</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Constant i₁</td>
<td>11.9125</td>
<td>3.4357</td>
</tr>
</tbody>
</table>

R² = .1563  
F(1,335) = 62.07, p = .000

EMB = Embitterment; PRO = Procedural injustice; AR = Affective rumination
Mediation analysis: Distributive injustice as predictor.

The mediation analysis showed that distributive injustice indirectly influenced affective rumination through its effect on embitterment. As can be seen in Figure 3.2 and Table 3.8., perceptions of distributive injustice were significantly and positively correlated with embitterment ($a_2$) which was associated with a subsequent increase in affective rumination ($b_2$). A bias-corrected bootstrap confidence interval for the indirect effect of embitterment ($ab_2 = 0.2918$), based on 5,000 bootstrap samples was entirely above zero (95% CI [0.2041, 0.3836]); thus, this was a significant effect. There was no evidence that distributive injustice influenced affective rumination independent of its effect on embitterment because the direct pathway ($c_2 = 0.0563$; Figure 3.2) was not statistically significant. These results represent a total mediation effect of perceptions of distributive injustice through embitterment for its effect on affective rumination.
Figure 3.2. Statistical diagram of the mediation model for the effect of embitterment in the relationship between distributive injustice and affective rumination.

Table 3.8

Model coefficients for mediation analysis of affective rumination (Distributive injustice as predictor)

<table>
<thead>
<tr>
<th></th>
<th>M (Embitterment)</th>
<th>Y(AR)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Coeff.</td>
<td>SE</td>
</tr>
<tr>
<td>X(DIS)</td>
<td>a₂</td>
<td>1.5735</td>
</tr>
<tr>
<td>M₁(EMB)</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td>Constant</td>
<td>i₂</td>
<td>25.6128</td>
</tr>
</tbody>
</table>

R² = .0815
F(1,335) = 29.74, p = .000

EMB = Embitterment; DIS = Distributive injustice; AR = Affective rumination
Mediation analysis: Interpersonal injustice as predictor.

The mediation analysis showed that interpersonal injustice indirectly influenced affective rumination through its effect on embitterment. As can be seen in Figure 3.3 and Table 3.9, perceptions of interpersonal injustice were significantly and positively correlated with embitterment ($a_3$) which was associated with a subsequent increase in affective rumination ($b_3$). A bias-corrected bootstrap confidence interval for the indirect effect of embitterment ($ab_3 = 0.2918$), based on 5,000 bootstrap samples was entirely above zero (95% CI [0.3382, 0.5780]); thus, this was a significant effect. There was no evidence that interpersonal injustice influenced affective rumination independent of its effect on embitterment because the direct pathway ($c_3 = 0.087$; Figure 3.3) was not statistically significant. These results represent a total mediation effect of perceptions of interpersonal injustice through embitterment for its effect on affective rumination.
Table 3.9

Model coefficients for mediation analysis of affective rumination (Interpersonal injustice as predictor)

<table>
<thead>
<tr>
<th></th>
<th>X (INT)</th>
<th>M (Embitterment)</th>
<th>Y (AR)</th>
</tr>
</thead>
<tbody>
<tr>
<td>a_3</td>
<td>2.4481</td>
<td>0.2852</td>
<td>0.0735</td>
</tr>
<tr>
<td>b_3</td>
<td>0.183</td>
<td>0.0127</td>
<td>0.000</td>
</tr>
<tr>
<td>Constant i_3</td>
<td>26.5973</td>
<td>2.4680</td>
<td>5.3386</td>
</tr>
</tbody>
</table>

R^2 = .1075
F(1,335) = 40.34, p = .000

EMB = Embitterment; INT = Interpersonal injustice; AR = Affective rumination
**Mediation analysis: Informational injustice as predictor.**

The mediation analysis showed that informational injustice indirectly influenced affective rumination through its effect on embitterment. As can been seen in Figure 3.4 and Table 3.10, perceptions of informational injustice were significantly and positively correlated with embitterment ($a_4$) which was associated with a subsequent increase in affective rumination ($b_4$). A bias-corrected bootstrap confidence interval for the indirect effect of embitterment ($ab_4 = 0.2779$), based on 5,000 bootstrap samples was entirely above zero (95% CI [0.2125, 0.3552]); thus, this was a significant effect. However, there was also evidence that informational injustice influenced affective rumination independent of its effect on embitterment because the direct pathway ($c_4 = 0.1732$; Figure 3.4.) remained statistically significant. These results represent a partial mediation effect of perceptions of informational injustice through embitterment for its effect on affective rumination.
Figure 3.4. Statistical diagram of the mediation model for the effect of embitterment in the relationship between informational injustice and affective rumination.

Table 3.10

Model coefficients for mediation analysis of affective rumination (Informational injustice as predictor)

<table>
<thead>
<tr>
<th></th>
<th>M (Embitterment)</th>
<th></th>
<th>Y(AR)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Coeff.</td>
<td>SE</td>
<td>p</td>
<td>R²</td>
</tr>
<tr>
<td>X(INF) a₄</td>
<td>1.6592</td>
<td>0.1717</td>
<td>.000</td>
<td>.2181</td>
</tr>
<tr>
<td>Mₑ(EMB) b₄</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Constant i₄</td>
<td>24.2683</td>
<td>2.4450</td>
<td>.000</td>
<td>-</td>
</tr>
</tbody>
</table>

R² = .1995
F(1,335) = 83.48, p = .000

EMB = Embitterment; INF = Informational injustice; AR = Affective rumination
Mediation analysis: Supervisory control as predictor.

The mediation analysis showed that supervisory control indirectly influenced affective rumination through its effect on embitterment. As can be seen in Figure 3.5 and Table 3.11, supervisory control was significantly and positively correlated with embitterment ($a_5$) which was associated with a subsequent increase in affective rumination ($b_5$). A bias-corrected bootstrap confidence interval for the indirect effect of embitterment ($ab_5 = 0.1941$), based on 5,000 bootstrap samples was entirely above zero (95% CI [0.1431, 0.2501]); thus, this was a significant effect. However, there was also evidence that supervisory control influenced affective rumination independent of its effect on embitterment because the direct pathway ($c_5 = 0.0683$; Figure 3.5) remained statistically significant. These results represent a partial mediation effect of supervisory control through embitterment for its effect on affective rumination.
Table 3.11

Model coefficients for mediation analysis of affective rumination (Supervisory control as predictor)

<table>
<thead>
<tr>
<th></th>
<th>M (Embitterment)</th>
<th></th>
<th>Y(AR)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Coeff.</td>
<td>SE</td>
<td>p</td>
<td>R²</td>
</tr>
<tr>
<td>X(SUP)</td>
<td>a₅</td>
<td>1.0778</td>
<td>0.1347</td>
<td>.000</td>
</tr>
<tr>
<td>Mₑ(EMB)</td>
<td>b₅</td>
<td>0.1801</td>
<td>0.0125</td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>i₅</td>
<td>24.4651</td>
<td>2.6440</td>
<td>.000</td>
</tr>
</tbody>
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R² = .1176
F(1,335) = 44.66, p = .000

EMB = Embitterment; SUP = Supervisory Control; AR = Affective rumination
3.4. Discussion

3.4.1. Summary of findings

The present study addressed the association between organisational justice, supervisory control, workplace embitterment and work-related rumination. It was hypothesised that the four concepts of organisational justice and supervisory control would be associated with increased levels of embitterment at work (Hypotheses 1a, 1b, 1c, 1d, 1e) and that embitterment at work would be associated with increased levels of affective rumination and decreased levels of problem-solving pondering and detachment (Hypotheses 2a, 2b, 2c.). Except for hypothesis 2b, all the remaining hypotheses were supported; the four concepts of organisational justice and supervisory over-control correlated significantly with workplace embitterment in the direction predicted. Affective rumination correlated positively with workplace embitterment and detachment correlated negatively with embitterment. The significant positive correlation between problem-solving pondering and embitterment however, was not in the direction predicted by hypothesis 2b. When applying the regression models, only supervisory over-control and perceived procedural injustice significantly predicted workplace embitterment; high levels of supervisory control predicted an increase in embitterment and low levels of procedural justice predicted an increase in embitterment.

With regards to predictors of affective rumination, problem-solving pondering and detachment, the regression models indicated that only affective rumination and detachment were significantly predicted by embitterment; high levels of workplace embitterment predicted higher levels of affective rumination and low levels of detachment. Additionally, the mediating effect of workplace embitterment levels on the association between organisational justice and affective rumination, as well as supervisory control and affective rumination was explored (Hypotheses 3a-3e). All mediation models were supported by the
findings.

The present study contributes to the understanding of the distinctive features of ruminative thinking occurring in the experience of embitterment in the workplace. To begin with, findings from the regression model indicate that after controlling for variables that could possibly impact the association between the study variables, embitterment accounted for 6% of the unique variance in affective rumination, suggesting that workplace embitterment is indeed a significant factor in the context of insufficient recovery from work. As Linden (2003) suggested, individuals experiencing embitterment might regard their ruminations in a positive way, in that they consider it important not to forget the causes of their embitterment as they “feel the need to persuade others of the strengths of their cause” (Linden, 2003, p. 198) and they can thus persevere in seeking remedies of their perceived injustice. However, this might not be the case for workplace embitterment; given that affective rumination can result in a negative emotional response (e.g., annoyance, feeling emotionally fatigued), embittered working individuals might not actually benefit from engaging in such recurrent thoughts.

As reported in the Results section, hypothesis 2b was not supported by the findings. However, the fact that workplace embitterment correlated positively with problem-solving pondering furthers our knowledge of the distinctive features of ruminations when embittered. According to Linden (2003), individuals who experience embitterment tend to feel helpless and might blame themselves for not having prevented the critical injustice event. Linden et al., (2007) further argued that embittered individuals find no meaning in putting further effort in solving a ‘problem’— which in their case the ‘problem’ would be the unjust, insulting event/person that got them into this negative state. Therefore, one could argue that embittered individuals would not engage in problem-solving pondering in the form of improving performance. However, the present findings indicate that this might not be the case for
embitterment in the work context. A positive association between workplace embitterment and problem-solving pondering was revealed, suggesting that individuals who experience embitterment in their workplace might ponder about finding solutions to work-related problems — in this case the problematic work environment is constituted by perceived organisational injustice. This might further imply that individuals experiencing workplace embitterment may not necessarily be characterised as hopeless and as lacking for strive and motivation to make an effort to “fix” things. Rather, this finding indicates that there is some hope in individuals experiencing embitterment at work and that they are willing to put some effort to solve the “problem”.

One of the major findings of the present study that was unexpected, is that both affective rumination and problem-solving pondering correlated positively with embitterment. Individuals experiencing embitterment reported higher levels of affective rumination, that can have an adverse impact on recovering from work, but at the same time they reported high levels of problem-solving pondering that can be conducive to the recovery process. Although the correlation between problem-solving pondering and embitterment was weaker than the correlation between affective rumination and embitterment, the fact that workplace embitterment did correlated significantly with problem-solving pondering might imply that individuals experiencing embitterment do consider problematic work issues, and try to engage in ways that potentially could enable them to overcome embitterment. As supported by Querstret and Cropely (2012), in a large cross-sectional study exploring the relationship between different forms of work-related rumination and fatigue, it is not thinking about work outside of work per se that is the problem, but rather the type of thinking and subsequent level of emotional activation that is important. This seems to be the case for individuals experiencing embitterment; it is not necessarily that ruminating about the injustice event that is the problem, but rather whether individuals experiencing embitterment can actually
ruminate in a more problem-solving focused way so that the emotional response is not evoked and affective rumination is restricted.

Findings from the present study, that embitterment is positively correlated with affective rumination and negatively correlated with detachment, are in line with a recently published study by Dunn and Sensky (in press)\textsuperscript{13} using a sample of staff of a healthcare facility attending its occupational health service. However, in contrast to the present study where the contribution of embitterment on each of the three forms of work related rumination was assessed, the authors assessed the contribution of affective rumination on embitterment. Dunn and Sensky (in press) support that the association between affective rumination and embitterment might contribute to the explanation for why embitterment becomes chronic. A key limitation of Dunn and Senksy’s (in press) study is its cross-sectional nature. Thus, a longitudinal study design is needed in order to clarify the direction of the causal relationship between affective rumination and embitterment.

With regards to what predicts embitterment in the workplace, the present findings are consistent with Sensky’s et al., (2015) findings who reported an association between workplace embitterment and procedure justice, and further supports Linden’s (2003) arguments that embitterment is mainly attributed to the individual’s experience of injustice or unfairness. However, the present findings specifically suggest that perceived unfairness because of structural and organisational aspects, rather than the quality of interpersonal treatment employees experience when organisational procedures are performed, significantly predict feelings of workplace embitterment. The fact that reduced levels of perceived procedural justice predicted high levels of embitterment indicates that when employees perceive injustice or unfairness in the procedures and processes that led to the decisions and distribution of outcomes, then they might show feelings of embitterment. Employees

\textsuperscript{13} This study was accepted for publication (in press) after completion and publication of study 1.
significantly value the procedures used in their organisations as these reveal to a great extend the organisation’s commitment to being fair and just towards their employees. Therefore, employees question themselves on whether they have a say on the decision making process, whether they influence in any way the decision outcome, whether procedures are applied consistently, whether they are free of bias, or whether process conforms to prevailing ethical/moral standards.

A possible explanation for why procedural injustice and over-controlling supervision were significant predictors of embitterment can be found in the fact that both predictors share the common concept of “control”. Procedural justice is rooted in Thibaut and Walker’s (1975) criteria for procedural justice; process control (e.g., the ability to voice one’s views and arguments during a procedure) and decision control (e.g., the ability to influence the actual outcome itself), as well as Leventhal’s (1980) fair process criteria, such as consistency, lack of bias, correctability, representation, accuracy and ethicality. Thibaut and Walker (1975) argued that influence and sense of control are vital components of procedural justice, and Leventhal (1980) argued that procedures should be representative of employees’ views and opinions. These assertions are violated when participation and autonomy are lacking in supervisor-subordinate interactions (Judge & Colquitt, 2004).

The two main criteria of procedural justice (i.e. process and decision control) are reflected in Colquitt’s (2001) organisational justice scale used in the present study and reflect the notion that lack of control has the ability to amplify perceptions of injustice. Moreover, over-controlling supervision accounted for 2.7% of the unique variance in embitterment. Dupré and Barling (2006), supported that although a certain level of supervisory control is often useful, excessive control over employees’ work performance may have a detrimental influence on employees. When employees are subject to controlling supervision while conducting their work, in the sense that they perceive their supervisors to be engaging in
behaviours that direct or constrain their work performance, as a result they may feel unjustly treated. The experience of being controlled in a large extent causes employees to feel that they personally lack freedom and control in the way they perform their work, which subsequently has been found in the present study to generate experiences of workplace embitterment.

Given the aforementioned, organisational injustice in the form of lack of control seems to predict feelings of embitterment in the workplace. Both procedural injustice and over-controlling supervision share in common employees’ reduced feeling of control over their work, the processes and decisions made.

In addition to exploring the predictors and consequences of embitterment in the workplace, this study also examined the mediating effect of embitterment in the relationship between organisational injustice, supervisory over-control and affective ruminatio. Embitterment in this study appears to be a significant mechanism through which all four concepts of organisational injustice and supervisory over-control exerted their effect on affective rumination; although for informational injustice and supervisory over-control it operated as only a partial mediator. However, Hayes (2013) strongly argues that the distinction between complete and partial mediation should be “abandoned” (p.172). Hayes (2013) supports his argument on the fact that in partial mediation, part of X’s effect on Y has not been accounted for by M, but a different mediator might have mediated this effect. This is also the case for complete mediation as well, as even with complete mediation one cannot simply preclude the effect of an entirely different mediator on the relationship between X on Y (Rucker, Preacher, Tormala, & Petty, 2011). Therefore, for this study Hayes (2013) argument was followed and both complete and partial mediators were treated equally.
3.4.2. Study Limitations

Although the current study may advance knowledge on what are the predictors and consequences of embitterment in the workplace, there were also some limitations that are worth mentioning. One of the most significant limitations of this study is its cross-sectional nature which makes it impossible to establish causality with regards to the relationship between variables. Although the interpretation is that lack of perceived procedural justice predicts high levels of workplace embitterment is one possibility, it is also possible that the direction of causality is reversed.

Another limitation is the self-report nature of the data. According to Podsakoff, MacKenzie, Lee, and Podsakoff (2003) self-report measures threaten the validity of the conclusions about the relationship between measures because of the measurement error enclosed in common method variance (e.g. social desirability). However, this should have been lessened due to some study design “remedies”. For instance, the online survey was anonymous and this should have reduced respondent’s evaluation apprehension and made them less likely to respond in a more socially desirable manner. The anonymous nature of the study was highlighted to respondents, to prevent social desirability responses, especially when they were asked to rate some questions in relation to their supervisors and work environment. Moreover, the use of different scale points for the various measures used, as well as the use of verbal labels for the scales, might have controlled for common method variance and reduced the likelihood of participants responding ‘by rote’ (Tourangeau, Rips, & Rasinski, 2000).

The study limitations are offset by the novelty of the findings. The present study is the first to explore what predicts embitterment in the workplace and what are the possible consequences. The findings also extend our understanding of the mechanisms by which
perceptions of organisational injustice may prevent adequate recovery from work via the feeling of workplace embitterment.

3.4.3. Directions for Future Research

The present study provided a good platform to explore what are the predictors and consequences of experiencing embitterment in the workplace. There are several interesting avenues for future research that could enable the better understanding of the feeling of embitterment in the workplace. First, future studies should attempt to expand on this study by implementing a longitudinal design, thus exploring whether levels of embitterment are stable across time and also enabling the detection of changes in the target population’s (employees) levels of embitterment, ruminations as well as their physical and psychological health. The present study supports that embitterment correlates highly with affective rumination and embitterment levels accounted for 6% of the unique variance in affective rumination, suggesting that it is a significant factor in the context of insufficient recovery from work. Given that a plethora of studies have supported that work-related rumination is associated with a range of both physical and psychological health issues, including saliva cortisol secretion (Rydstedt et al., 2009), sleep disturbances (Cropley et al., 2006; Nylén, Melin, & Laflamme, 2007), fatigue (Questret & Cropely, 2012), concentration issues (Cropley & Zijlstra, 2011), one could argue that the feeling of embitterment could also have adverse effects on one’s physical and psychological wellbeing, especially if the feeling of embitterment is ongoing.

Also, it would be of interest to develop and test interventions for those who experience embitterment. To date there is no agreed treatment for embitterment. Linden et al., (2007) have presented preliminary evidence for the benefits individuals suffering from PTED could gain from wisdom therapy. Recent findings by Linden et al., (2011) have suggested that people suffering from PTED are deficient in wisdom competencies (e.g. empathy and
compassion for others), mainly when they have to cope with complex or ambiguous life situations. However, wisdom competencies can be significantly enhanced by specific training through wisdom therapy. Indeed, Linden et al., (2011) have supported that wisdom therapy offers an approach to treat PTED. Despite the benefits of wisdom therapy, it can be costly, time-consuming and not that easy-to-use intervention as it is delivered by cognitive behavioural therapists and clinical psychologists specifically trained on wisdom strategies and competencies and the therapy can take up to 6 weeks. It would thus be interesting to look at other inexpensive and easy-to-use treatment approaches which individuals experiencing embitterment could benefit from (e.g. expressive writing).

3.4.4. Conclusions

The present study has led to significant conclusion regarding the distinctive characteristics of embittered employees’ ruminations. Individuals experiencing embitterment engage in intrusive, pervasive, recurrent thoughts about work that are negative in affective terms, thus preventing them from fully detaching from work. However, the fact that levels of embitterment correlate positively with problem-solving pondering suggests that individuals experiencing embitterment might actually ponder about work-related problems in order to see how they can be improved. Moreover, findings have further our understanding of what predicts embitterment specifically in the workplace. Organisational injustice in the form of lack of control seems to predict feelings of embitterment in the workplace; both procedural injustice and over-controlling supervision share in common employees’ reduced feeling of control over their work, the processes and decisions made. Finally, it is possible to conclude that because of the perceived lack of organisational justice, employees experience embitterment, which subsequently leads to increase engagement in affective rumination which is indicative of insufficient recovery from work.
Chapter 4

Study 2. The impact of embitterment on employees’ work engagement and job satisfaction; a 6month longitudinal study

The cross-sectional study in Chapter 3 showed that procedural injustice and over-controlling supervision were significant predictors of embitterment and that embitterment contributed significantly to the prediction of increased affective rumination and reduction in detachment. Considering the main limitation of Study 1 (cross-sectional design), the aim of Chapter 4 was to build on the findings of Chapter 3; that organisational injustice and over-controlling supervision are predictors of workplace embitterment, and to investigate the impact embitterment has on work engagement and job satisfaction, by employing a longitudinal study design. The chronicity of workplace embitterment was also studied.

4.1. Introduction

As discussed in Chapter 1, Linden defined embitterment as “an emotion encompassing persistent feelings of being let down, insulted and of being revengeful but helpless” (2003, p.197). Embitterment reactions occur when important values, beliefs, world-, or self definitions are called into question by perceived injustice. Social injustice has thus been described as a contributing factor of embitterment (Pirchacova, 1997), and the perception of injustice and violation of basic beliefs are key premises in Post-traumatic Embitterment disorder (Linden, 2003). Linden et al. (2008), supported that various life events, from illness to divorce, can provoke the feeling of embitterment. The most common life event however, that can generate embitterment reactions is work related (Linden et al., 2008). In support of this, Sensky (2010) argued that clinicians working in occupational health readily recognise features of embitterment, such as anger, rumination, helplessness and appraisals of injustice, in employees they have assessed. This is not unsurprising, given that
the workplace often encompasses disappointments, conflicts and experiences of injustice and unfairness.

The hallmark feature of embitterment is that it can be triggered by an event experienced as unjust and unfair. Scholars (Sensky, 2010; Muschalla & Linden, 2011) have argued that implicit in the experience of embitterment in the workplace is a perceived failure of organisational justice. Indeed, support for this proposition can be found in Chapter 3 (study 1) in a study revealing that experiences of organisational injustice, particularly procedural and supervisory over-control, significantly predicted the feeling of embitterment in employees (Michailidis & Cropley, 2016). Moreover, Sensky et al., (2015), showed that NHS staff who are embittered perceive their organisation as unsupportive to them, with workers showing low levels of procedural justice. However, a common limitation of both studies is their cross-sectional nature, and hence inferences on the direction of causation of the associations reported are hard to be drawn from the data. This generates the need for a longitudinal study that would enable us to build on these findings and produce more reliable information on the prospective associations between organisational justice and the feeling of embitterment.

Further to organisational injustice predicting workplace embitterment, the importance of organisational justice, for the employee and the organisation, also lies in its link to crucial consequences both on the individual’s well-being and job performance. A plethora of studies have revealed that the experience of organisational injustice interferes with employees’ physical and psychological health. For instance, organisational injustice has been associated with strain and exhaustion (Elovainio et al., 2001; Moliner, Martinez-Tur, Peiró, Ramos, & Cropanzano, 2005; Cole, Bernerth, Walter, & Holt, 2010) and even coronary heart diseases (Kivimäki et al., 2005). With regards to employees’ job performance, organisational justice has also been found to be associated with positive organisational behaviours such as work
engagement. Recently, Agarwal (2014) supported that organisational justice and more precisely, procedural and interactional justice, are positively related to work engagement. These findings also seem to be aligned with Saks’ (2006) findings that perceptions of procedural justice predict organisational engagement.

**Work engagement**

Work engagement is defined as an affective-motivational state of work-related well-being. Scholars have argued and supported that employee engagement predicts organisational success, financial performance and most importantly employee outcomes such as job satisfaction, organisational commitment, organisational citizenship behaviour and intentions to leave (Saks, 2006; Harter, Schmidt, & Hayes, 2002). While organisations need to recruit and retain top talented employees, it is their interest to ensure that their talented employees remain physically and emotionally engaged with their work (Bakker & Leiter, 2010). In support to this, Harter, Schmidt and Keyes (2003) found that businesses that experienced high levels of employees’ engagement averaged $80,000 to $120,000 higher revenue or sales per month than other business. Thus, the importance of having an engaged workforce cannot be denied.

Two schools of thoughts exist on defining the concept of work engagement. The first approach assumes engagement as the opposite or positive antithesis of burnout (Maslach & Leiter, 1997). According to Maslach and Leiter (1997), engagement is characterised by energy, involvement and efficacy, the direct opposite dimensions of burnout (i.e. exhaustion, cynicism, professional inefficacy). This definition of engagement implies that the opposite scoring pattern of the three aspects of burnout — as measured with the Maslach Burnout Inventory (MBI) — indicate engagement. That is, low levels of exhaustion, cynicism and professional inefficacy on the MBI indicate engagement. According to Schaufeli, Salanova, González- Romá and Bakker (2002), however two critical downsides arise from Maslach’s
and Leiter’s (1997) definition of work engagement. Firstly, it is not reasonable to expect that both burnout and engagement are perfectly negatively correlated. That is, if an employee is not burned out, this does not necessarily imply that he or she is engaged at work. Secondly, using the same items to measure both constructs prevents the empirical study of the relationship between the two constructs. For instance, the concurrent validity of the two concepts cannot be measured if both concepts are included simultaneously in one model.

Given the negative points of assessing engagement and burnout by the same questionnaire, Schaufeli et al., (2002) considered burnout and work engagement as principally independent from each other. Accordingly, Schaufeli et al., (2002) defined engagement as “a positive, fulfilling, work-related state of mind that is characterised by vigour, dedication, and absorption.” (Schaufeli et al., 2002, p.74). Vigour refers to high levels of energy and mental resilience while working, an employee’s willingness to invest time and effort in his or her job, and persistence even in the face of difficult situations. Dedication is characterised by being strongly psychologically involved in one’s work accompanied by the sense of significance, enthusiasm, inspiration, pride and challenge. Finally, absorption refers to the state of being fully concentrated and happily engrossed in one’s work, whereby time passes quickly and one has difficulty detaching oneself from work (Schaufeli et al., 2002).

Work engagement & Organisational Justice

As noted above, organisational justice plays an important role in predicting work engagement. Macey, Schneider, Barbera, and Young (2009) found that employees are engaged only when they experience and perceive justice in their workplace. Justice in this instance can refer to the fair distribution of rewards (distributive justice), the fair procedures by which decisions to rewards are made (procedural justice), and the fair interactions employees have with their supervisors and colleagues (interactional and informational justice). The link between organisational justice and work engagement has its roots in the
Social Exchange Theory (SET). Based on SET, obligations are generated through a series of interactions between parties who are in a state of reciprocal interdependence. The key premise of SET is that relationships evolve over time into trusting, loyal, and mutual commitments provided that the parties abide by certain “rules” of exchanging, or the norm of reciprocity (Cropanzano & Mitchell, 2005). A “reciprocal exchange” is understood as one that does not include explicit bargaining (Molm, 2003). Rather, these rules of exchange usually involve reciprocity or repayment rules such that the actions of one party lead to a response or actions by the other party within a particular time period. For instance, when an employee receives economic and socioemotional rewards from their organisation, they feel obliged to respond in kind and repay the organisation (Cropanzano & Mitchell, 2005). In this respect, engagement is understood as a two-way relationship between the employer and the employee, where one party’s actions are contingent on the other’s behaviour.

Employees’ perceptions of organisational justice within their workplace can be the precursor of social exchange in an employment relationship. In reference to Williams’s (1997) Multiple Needs Model of Justice Theory, employees do care about being fairly treated, because justice fulfils important psychological needs, termed control, belonging, self-esteem, and meaningful existence. Perceived injustice and lack of fairness can be psychologically ominous, as mistreatment by other people potentially conflicts with each of these needs. When the organisation is characterised by fair and just treatment towards its employees, this engenders an obligation on the part of the employee to reciprocate the good performances of the organisation. Employees are more likely to become more engaged as a way to repay their organisation. In this sense, engagement is a payback or reciprocation for what the company has provided to its employees (Agarwal, 2014).
**Work engagement & Embitterment**

SET provides a theoretical foundation to explain why employees choose to become more or less engaged in their workplace. As already shown by Saks (2006), perceived organisational justice by the employees, provokes the feeling of being obliged to also be fair in how they perform their roles by giving more of themselves through greater levels of engagement. But what if an employee experiences feelings of embitterment in his or her workplace? Given the context within which embitterment develops; it is triggered by an event that is experienced as unjust and unfair and that psychologically violates basic beliefs and values (Linden, 2003), it makes theoretical sense to consider reduced levels of engagement being generated in the aftermath of the feeling of embitterment in the workplace. Michailidis and Cropley (2015) provided support that employees’ perceptions of organisational injustice predict employees’ feelings of embitterment. What is needed at this stage is to investigate whether feeling embittered engenders employees to withdraw and disengage themselves from their work roles. If this is the case, embitterment can have detrimental consequences both for the employee’s well-being but also for the organisation.

The embitterment-engagement link can be explained in light of the SET. As already mentioned, SET postulates that depending on the resources employees receive from their organisation, they feel obliged to respond in kind and repay the organisation. Feeling embittered, for example due to perceived injustice and unfairness in the workplace, might generate in employees the need for revenge and payback to the organisation through reduced levels of engagement. Linden et al., (2008) has indeed supported that the perceived feeling of injustice as the aftermath of embitterment makes embittered individuals to seek revenge in order to find justice. As Skarlicki and Folger (1997) have shown, intentions to retaliate are common reactions to experiences of injustice. The authors found that distributive, procedural and interactional injustice lead employees to engage in covert organisational retaliatory
behavior such as intentionally working slower. Thus, it might be that employees feeling embittered become less engaged in their work role as a way to seek revenge.

**Job satisfaction & Embitterment**

Job satisfaction is an evaluative judgment of a person’s work aspects and situations, including pay, promotion opportunities, the job itself, management style, working conditions and the work group (Weiss, 2002). Job satisfaction is considered a significant predictor of important non-functional behaviours, such as absenteeism. A number of work variables have been found to predict job satisfaction, including work conditions, such as role conflict (Rizzo, House, & Lirtzman, 1970) and interpersonal relationships at work, such as quality of supervision (Podsakoff, Todor, & Skov, 1982). In addition to embitterment predicting reduced work engagement, the present study also explores embitterment as a predictor of reduced job satisfaction.

**The present study**

The present study utilised a sample of employees working in Cyprus. In March 2013, the government of Cyprus, in response to a banking crisis and as part of a negotiation to secure emergency financial support for its financial system from the European Union (EU) and International Monetary Fund (IMF), proposed a program including the “deposit haircuts” of deposits over 100,000 euro as well as capital controls, and the subsequent destruction of the banking system as one of the largest banks of the country (Laiki Bank) was closed down. Inevitably, in the aftermath of the economic crisis that Cyprus went through, many industries such as financial, retail, real estate, hospitality, tourism etc. are experiencing numerous challenges. Many industries are still feeling the impact of a shrinking capital market and decreased spending by both corporate and individual consumers. Due to the austerity measures applied (e.g. increases in VAT taxes), businesses of all kinds have reported a
downturn in sales of goods and services, resulting in closure, or organisational restructuring. This in turn has led to detrimental consequences for the employees as the restructuring in many companies is mostly accompanied by making employees redundant, cuts in payments, allowances and pensions, limited opportunities for promotions and development, higher workload and taking over more responsibilities etc. (Koutsampelas & Polycarpou, 2013). One could therefore argue that after the island’s economic crisis in 2013, Cypriot employees experience breaches of organisational justice (e.g. lack of distributive justice) generating thus the feeling of embitterment in the workplace. For these reasons, it was decided to conduct the study in a Cypriot working population.

4.1.1. Aims & Hypotheses of longitudinal study

The present longitudinal study was conducted in order to address three main questions that are elaborated below:

Linden (2003) proposed the term post-traumatic embitterment disorder (PTED) to encompass embitterment that can be traced back to an initial trigger or a single hurting event. However, Sensky (2010) also introduced the term ‘chronic embitterment’ which reflects a dimensional expression of embitterment, where embitterment may be due to different preconditions and not necessarily a single event. According to Sensky (2010) a key characteristic of this condition is its escalation over time. However, no empirical study has explored whether workplace embitterment escalates over time or whether it remains stable. Rather inferences have been drawn from clinical experiences (e.g. Linden, 2003). Therefore, the first aim of this longitudinal study was to investigate the chronicity of workplace embitterment; whether it remains stable or whether it diminishes or escalates over a period of 6-months.

The second aim of this longitudinal study was to build on the findings of study 1, (see Chapter 3) which revealed that low levels of organisational justice and high levels of
supervisory control can significantly predict higher levels of workplace embitterment. Given the cross-sectional nature of Study 1 it is impossible to establish causality. Although the interpretation from Study 1 is that lack of perceived procedural justice predicts high levels of embitterment, this is only one possibility, it is also possible that the direction of causality is reversed. Given that there are only two time points of measurement in the current longitudinal study, it is not possible to explore a causal relationship; however, it will be interesting to see if the association between organisational injustice and embitterment remains the same as found in study 1.

**Hypothesis 1a.** Procedural injustice in Time 1 will predict higher levels of workplace embitterment in Time 2

**Hypothesis 1b.** Distributive injustice in Time 1 will predict higher levels of workplace embitterment in Time 2

**Hypothesis 1c.** Informational injustice in Time 1 will predict higher levels of workplace embitterment in Time 2

**Hypothesis 1d.** Interpersonal injustice in Time 1 will predict higher levels of workplace embitterment in Time 2

**Hypothesis 1e.** Supervisory over control in Time 1 will predict increased levels of workplace embitterment in Time 2

The third aim of this longitudinal study was to investigate whether embitterment in the workplace leads to reduced levels of self-reported work engagement, as well as reduced levels of job satisfaction. As discussed above, it makes theoretical sense — based on the SET—to consider feelings of embitterment as hindering work engagement, perhaps as a means of employees to 'seek revenge' from their workplace. An employee experiencing embitterment perceives the organisation they work for as having failed them, constituting a
breach of the two-way reciprocal exchange relationship between the employer and the employee.

_Hypothesis 2a._ Workplace embitterment levels in Time 1 will predict reduced levels of vigour in Time 2

_Hypothesis 2b._ Workplace embitterment levels in Time 1 will predict reduced levels of dedication in Time 2

_Hypothesis 2c._ Workplace embitterment levels in Time 1 will predict reduced levels of absorption in Time 2

_Hypothesis 2d._ Workplace embitterment levels in Time 1 will predict reduced levels of job satisfaction in Time 2

4.2. Methods

4.2.1. Ethical approval

Ethical approval was granted by the University of Surrey Ethics Committee (ethics approval reference: UEC/2016/011/FHMS; see Appendix H). A risk assessment was carried out and ethical considerations for participants included: the right to withdraw from the study up to the point of completing both online surveys, ensuring participant’s confidentiality and that their answers will not be shared with their employers, managers or supervisors, and ensuring that participants had adequate information and time to make an informed decision about taking part in the study.

4.2.2. Design

In order to address the research questions, a 6-month longitudinal study design was employed. Participants were asked to complete an online cross-sectional survey at two time
points; with Time 2 (T2) occurring 6 months after initial completion of the survey (T1). The time period of 6 months was chosen based on Linden’s et al., (2008) research diagnostic criteria for PTED, which specify that the duration of the emotion of embitterment (disorder) is longer than three months. The variables collected were (1) self-reported organisational justice perceptions as indicated by Colquitt’s (2001) four dimensional organisation justice measure, (2) perceived supervisory control over work performance (Dupré & Barling, 2006), (3) workplace embitterment levels as indicated by scores on the modified version of the PTED scale (Linden et al., 2009), (4) job satisfaction (Warr, Cook, & Wall, 1979) and (5) work engagement as indicated by the Utrecht Work Engagement Scale (UWES; Schaufeli & Bakker, 2003). Background data such as age, gender, work status, etc., were also collected. As the study was conducted with a Greek-Cypriot sample, a Greek version of all scales was used. If a Greek version of the scale was not already available, the English version of the scale was translated into Greek and then it was checked for accuracy with the method of back-translation by one professional translator and one bilingual (English and Greek speaker) psychology researcher. All variables were collected in both time periods (T1 & T2).

4.2.3. Procedure

Recruitment of participants. As a first step a link to the survey was forwarded to personal acquaintances of the researcher through email. Details of the study and a link to the survey were also posted on professional networking sites (e.g. LinkedIn) to encourage participation of working adults. Individuals who chose to participate were encouraged to forward the link to other colleagues who were over the age of 18 and working. In order to recruit more participants, the researcher approached HR managers of organisations and requested if they could invite their staff to take part in the study. Those who agreed to take part were sent a link to the online survey. It was made clear to the participants that the information they
provided would not be shared with their employers or supervisors but only the two researchers involved would have access to their responses.

**Online survey - Time 1.** The study took place online with participants accessing the study from their own home or other location of their choice. The Qualtrics Web-based survey software was used for hosting the online survey. Participants were presented with an online information sheet, and if they were happy to proceed with the study they were asked to tick a box to signal their consent to take part in the study. Afterwards participants were asked to answer a short demographic questionnaire comprising questions on background information such as age, gender, etc. and other control variables such as job demands etc. Participants’ perceptions on organisational justice as well as their supervisor’s control over their work performance were measured using the Organisational justice perceptions measure (Colquitt, 2001) and the supervisory control over work performance scale (Dupré & Barling, 2006). Participants were then presented with the 19 items of the PTED scale and were asked to rate to what extent each statement applies to them (0 = not at all true to 4 = extremely true). Next participants’ level of work engagement and job satisfaction levels were assessed by using the Utrecht Work Engagement Scale (Schaufeli & Bakker, 2003) and the Job Satisfaction scale (Warr et al., 1979) respectively. Finally, participants were presented with a brief debriefing statement informing that they would receive an email with a Link to the survey again in six months time. The survey took approximately 15 minutes to complete.

**Online survey - Time 2.** Six months after initial completion of the study participants were emailed again the same survey as in Time 1.

**Pilot study**

Before circulating the survey link, a pilot study was conducted with 10 participants to ensure that there were no flaws in the survey and that all questions were clear and understandable.
The pilot study also allowed the researcher to assure that the survey did not take longer than 15 minutes to complete.

**Sample size and Participant details**

Three hundred and fifty-two (N = 352) employees (Male = 27.8% [98], Females = 72.2% [254]) completed the survey at Time 1. These 352 participants were then followed up six months later (T2) by sending them an email link to the online survey.

One hundred and sixty nine (N = 169) participants completed the questionnaire at Time 2 (response rate = 48 %). High attrition rates in longitudinal studies are a common problem; Visser (1982) reported 30-50 dropout rates and higher. There was no significant difference on levels of embitterment between participants who responded at both time points (M = 1.24, SD = 0.99) and participants who dropped out and only completed the survey at Time 1 (M = 1.27, SD = 0.92); t (350) = -0.73, p = .46. Twenty four participants in Time 2 were no longer working at the same company/organisation so they were excluded from the main data analysis.

The final sample (assessed at two time points and included in final analysis) was 147 working adults (Male = 43, Females = 104) with an age range of 21-61 years (M = 35.33, SD = 10.04). The majority of participants (89.7% [130]) worked full-time. Seventy participants (47.6 %) worked on average 31-40 hours per week, 44 participants (29.9%) worked 41-50 hours per week, 13 participants (8.8%) worked 21-30 hours per week, 13 participants (8.8 %) worked 51-60 hours per week, 4 participants (2.7%) worked more than 61 hours per week and 3 participants (2%) worked 10-20 hours per week. The majority of participants (25% [36]) worked in their current role for 5-10 years. Eighty eight participants (59.9%) were married or

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14 Data analysis was also conducted including all 169 participants but there was no significant differences in the findings. Therefore here findings from the 147 participants are reported.
had a partner, fifty two participants (35.4%) were single, six participants (4.1%) were separated/divorced, one participant (0.7%) was widowed. Participants worked in many industry sectors, including; teaching and education related occupations (15.3% [22]), followed by research/science (13.2% [19]), accounting, banking and finance (12.5% [18]), other (11.8%, [18]), healthcare services (8.3% [12]), information technology (5.6 % [8]), social care services (5.6% [8]), business, consulting and management (4.9% [7]), sales (4.9% [7]), marketing, advertising and PR (3.5% [5]), recruitment and HR (2.8% [4]), media and publishing (2.8% [4]), property and construction (2.1% [3]), hospitality (2.1% [3]), environment and agriculture (2.1% [3]), energy and utilities (0.7% [1]), creative arts and design (2.1% [3]), leisure, sports and tourism (1.4% [2]), legal services (1.4% [2]), engineering (1.4% [2]). The majority of participants were University educated (53.1% [78]), with a postgraduate degree.

4.2.4. Measures

Unless stated otherwise, all scales and items were translated in Greek from the English version and were checked for accuracy with the method of back-translation by one professional translator and one bilingual (English and Greek) psychology researcher. Cronbach’s alphas values for all measures can be viewed in Table 4.1.

**Organisational Justice Perceptions.** As in the previous chapter, perceptions of organisational justice were assessed using the four dimensions: distributive, procedural, interpersonal and informational of the Organisational Justice Perceptions measure (OJP; Colquitt, 2001). This measure has been widely used in many studies (e.g. Judge & Colquitt, 2004). Colquitt (2001) supported the high reliability of each scale; $\alpha = .93$ for procedural items, $\alpha = .93$ for distributive items, $\alpha = .92$ for interpersonal items and $\alpha = .90$ for informational items.
Supervisory control over work performance scale. As in the previous chapter, supervisory control was assessed by using the Supervisory Control over work performance scale (SCOWP scale; Dupré & Barling, 2006). Dupré and Barling (2006) have reported a Cronbach’s $\alpha = .81$ for these 8 items.

Post-traumatic embitterment disorder Self-Rating Scale. As in the previous chapter, embitterment at work was assessed using the modified to work version of the PTED scale (Linden et al., 2009) that is composed of 19 items aiming to assess features of embitterment reactions in the aftermath of negative events at work.

Job satisfaction. Job satisfaction was measured using Warr’s et al., (1979) Job Satisfaction scale, which is composed by 15 items measuring different elements of intrinsic and extrinsic satisfaction in the workplace. Respondents were asked to rate on a seven-point liker scale ($1 = completely unsatisfied$ to $7 = completely satisfied$), items such as “Indicate how satisfied or dissatisfied you are with…the recognition you get for good work”. This scale has been widely used in occupational settings, with reported Cronbach’s alpha of .94 (Hombrados-Mendieta & Cosano-Rivas, 2013).

Work engagement. Work engagement was measured by the validated Greek version of the Utrecht Work Engagement Scale (UWES; Schaufeli & Bakker, 2003). The UWES is a 17 item self-report measure designed to measure the three subscales of work engagement; absorption, vigor and dedication. Respondents are instructed to rate on a 7-point scale ($0 = never$ to $6 = every day or always$), how they feel about their job in each of the three subscales of work engagement. The absorption subscale includes 6 items such as “When I am working I forget everything else around me”. Included in the vigor subscale are 6 items such as, “At my job I feel strong and vigorous”. An item representative to the dedication subscale is, “My job inspires me”. This scale has been widely used in several studies (e.g. Mauno, Kinnunen, &
Various studies have provided support for a good reliability of the three subscales of the UWES, with Cronbach’s Alpha ranging from .80 to.90 (Demerouti, Bakker, de Jonge, Janssen, & Schaufeli, 2001; Schaufeli, Taris, & Van Rhenen, 2003). The UWES has been validated in Greece by Xanthopoulou, Bakker, Demerouti, and Kantas (2012).

**Control variables**

*Negative Affect* (NA; Watson & Clark, 1984) was controlled for, as in the previous chapter. Individuals who show high negative affectivity are more vulnerable to greater distress and dissatisfaction, are more thoughtful on their failures, focus in a greater extent on the negative side of the world and thus hold a less favourable self-view and are dissatisfied with themselves and life (Watson & Clark, 1984). Measures were single words denoting different emotions related to NA such as *nervous*. Respondents were asked to read the 10 single words and indicate to what extent they felt this way the past few days, against a 5-point scale (1 = very slightly or not at all to 5 = extremely). A Greek version of the PANAS scale was used for the present study, adapted by Papantoniou, Moraitou, Dinou, and Katsadima (2010). Papantoniou et al., (2010) reported good internal consistency for the Greek version of PANAS scale; Cronbach’s $\alpha = .83$ for the Negative affect items.

*Job demands in the workplace*

The present study further controlled for one other variable (job demands) that has been shown to impact the association between organisational justice, embitterment and work-engagement. As in the previous chapter, perceived job demands were measured using nine items from the Job Content Questionnaire (JCQ; Karasek et al., 1998). These items refer to the quantitative, demanding aspects of the job (e.g. working hard).
4.3. Results

4.3.1. Analytic approach

Data analyses are presented in six sections. In the first section (4.3.2.) mean, standard deviation and Cronbach’s alpha for all study and control variables for the longitudinal data are presented. The first section also includes paired sample t-tests that were conducted to test for any differences between T1 and T2 variables. The t-tests analysis also aimed to examine the chronicity of embitterment; whether it remains stable or whether it diminishes or escalates over a period of 6-months.

In the second section (4.3.3.) correlation analysis on the main study variables and control variables were conducted. All correlations can be presented in the correlation matrix (Table 4.2.).

The third section (4.3.4.) presents hierarchical regression models testing whether distributive justice, procedural justice, interpersonal justice, informational justice and supervisory over-control in T1 were significant predictors of embitterment in T2 (Hypothesis 1a-1e).

Specifically, these models were performed in the following order: In Model 1 significant control variables (NA) were entered (Step 1) followed by the predictor variables; distributive justice, procedural justice, interpersonal justice, informational justice and supervisory over-control, (Step 2). The dependent variable (i.e. embitterment levels) was derived from T2 and the predictor variables from T1. The control variables were derived from T1. However, in Model 2, the baseline value (T1) for embitterment was controlled for (Step 1), followed by the same variables in the same order as in Model 1 respectively. The baseline value for embitterment was controlled to examine whether the predictor variables in T1 would have any predictive power after controlling for the baseline of the dependent variable (embitterment). Furthermore, this procedure also reveals the stability of embitterment.
between the two measurement points (T1 & T2). This analytic approach has been used in a previous longitudinal study conducted by Mauno et al., (2007).

The fourth section (4.3.5.) presents hierarchical regression models testing whether changes in predictor variables significantly predict changes in the outcome variable (embitterment). This was done because although the levels of embitterment between T1 and T2 did not significantly differ, as revealed in the t-tests (4.3.2), still some participants’ embitterment scores did differ throughout the 6-month period. These models were performed in the following order: In Model 3 control variable (NA) was entered (Step 1) followed by the predictor variables; distributive justice, procedural justice, interpersonal justice, informational justice and supervisory over-control, (Step 2). All variables; dependent variable (i.e. embitterment levels) and the predictor variables and control variables were derived from the changed scores between T2 and T1.

The fifth section (4.3.6.) presents hierarchical regression models testing whether embitterment levels in T1 were significant predictors of work engagement and job satisfaction in T2 (Hypothesis 2a-2d). Specifically, these models were performed in the following order: In Model 4a, 5a, 6a & 7a significant control variables (NA and Job demands) were entered (Step 1) followed by the predictor variable embitterment, (Step 2). The dependent variables (i.e. engagement levels and satisfaction) were derived from T2 and the predictor variable from T1. The control variables were derived from T1. However, in Model 4b, 5b, 6b, & 7b, the baseline value (T1) for each dependent variable was controlled for (Step 1), followed by the same variables in the same order as in Model 4a – 7a respectively. The baseline values for engagement and satisfaction were controlled in order to examine whether the predictor variable in T1 would have any predictive power after
controlling for the baseline of the dependent variable. Each of these hierarchical regression models were conducted separately for each dimension of work engagement.\textsuperscript{15}

Finally, section six (4.3.7.) presents hierarchical regression models testing whether \textit{changes} in predictor variable (embitterment) significantly predict \textit{changes} in the outcome variables. These models were performed in the following order: In Model 8-10 control variable (NA and job demands) were entered (Step 1) followed by the predictor variables embitterment, (Step 2). All variables; dependent variable (i.e. engagement levels and job satisfaction), predictor variable and control variables were derived from the changed scores between T2 and T1.

\textbf{4.3.2. Mean, Standard Deviation, Cronbach’s alpha and T-tests}

All analyses were performed using IBM SPSS Statistics 21. Mean, standard deviation and Cronbach’s alpha for all study and control variables for the longitudinal data are presented in Table 4.1. Separate \textit{paired t-tests} for each study variable at both measurement points (T1 & T2) revealed that the differences were not statistically significant; embitterment $t(146) = 0.07$, $p = .95$; procedural justice, $t(146) = -0.39, p = .70$; distributive justice $t(146) = -0.20, p = .84$; interpersonal justice $t(146) = 0.97, p = .34$; informational justice $t(146) = 0.17, p = .86$; vigor $t(146) = 0.92, p = .36$; absorption $t(146) = 0.14, p = .89$, dedication $t(146) = 1.68, p = .09$; job satisfaction $t(146) = 1.05, p = .29$; demands $t(146) = 0.84, p = .40$. The non-significant findings as well as the lack of variations in the mean level of embitterment during the 6 month period, imply that no significant time-related changes occurred in the level of

\textsuperscript{15} Vigor: 4a & 4b; Dedication: 5a & 5b; Absorption: 6a & 6b; Job Satisfaction: 7a & 7b Regression analysis were also run by treating work engagement as one-dimensional variable, however no significant findings were found.
embitterment, suggesting that embitterment — at least within the present sample — is indeed a stable, chronic feeling.

As mentioned twenty four participants in T2 were no longer working in the same company/organisation. As an attempt to examine whether embitterment levels can lead to employees’ turnover, further paired t-tests analysis were conducted in order to compare embitterment levels between T1 and T2 for participants who changed company. Findings revealed that there was no significant difference in embitterment levels between T1 ($M = 1.2$, $SD = 0.95$) and T2 ($M = 1.05$, $SD = 1.14$) for participants who are no longer in the same company; $z = -1.39, p = .16$. Therefore, it cannot be concluded that employees’ turnover in Time 2 was because of high levels of embitterment (in Time 1), as their embitterment level did not significantly change in time 2, where they were no longer working in the same company. The difference in the embitterment levels are small and not significant. Also, it is evident from the mean embitterment level ($M = 1.2$) that these participants were not that highly embittered as their mean score did not reach the cut-off score of 1.6.

4.3.3. Correlation analysis

Correlation analysis on the main study variables and control variables were conducted. All correlations can be presented in Table 4.2. Identification of potential confounds was undertaken by reviewing the correlations between the proposed control variables (NA and job demands) and each outcome variables; embitterment for hypothesis 1 and vigor, dedication, absorption and job satisfaction for hypothesis 2a, 2b, 2c and 2d respectively. For hypothesis 1, NA significantly correlated with the outcome variable – embitterment, thus was controlled in further analyses. For hypothesis 2a – 2d, NA, and job demands significantly correlated with the outcome variables, therefore were controlled in further analyses.
Table 4.1

*Means (SD) & Cronbach’s alphas (α) for all study variables*

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<tr>
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<th>T2</th>
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<tbody>
<tr>
<td></td>
<td>Mean (SD)</td>
<td>α</td>
<td>Mean (SD)</td>
<td>α</td>
</tr>
<tr>
<td>EMB</td>
<td>1.28 (0.92)</td>
<td>.96</td>
<td>1.28 (0.98)</td>
<td>.97</td>
</tr>
<tr>
<td>PRO</td>
<td>2.78 (0.97)</td>
<td>.85</td>
<td>2.81 (1.04)</td>
<td>.88</td>
</tr>
<tr>
<td>DIS</td>
<td>2.44 (1.18)</td>
<td>.95</td>
<td>2.45 (1.28)</td>
<td>.97</td>
</tr>
<tr>
<td>INT</td>
<td>4.01 (0.93)</td>
<td>.94</td>
<td>3.95 (0.95)</td>
<td>.93</td>
</tr>
<tr>
<td>INF</td>
<td>3.31 (1.03)</td>
<td>.86</td>
<td>3.30 (1.08)</td>
<td>.90</td>
</tr>
<tr>
<td>SUP</td>
<td>2.47 (0.68)</td>
<td>.80</td>
<td>2.44 (0.78)</td>
<td>.85</td>
</tr>
<tr>
<td>VIG</td>
<td>3.74 (1.11)</td>
<td>.87</td>
<td>3.68 (1.17)</td>
<td>.87</td>
</tr>
<tr>
<td>DED</td>
<td>3.75 (1.36)</td>
<td>.90</td>
<td>3.60 (1.41)</td>
<td>.93</td>
</tr>
<tr>
<td>ABS</td>
<td>3.56 (1.22)</td>
<td>.91</td>
<td>3.56 (1.25)</td>
<td>.89</td>
</tr>
<tr>
<td>JS</td>
<td>4.63 (0.99)</td>
<td>.90</td>
<td>4.56 (1.14)</td>
<td>.92</td>
</tr>
<tr>
<td>NA</td>
<td>1.79 (0.66)</td>
<td>.88</td>
<td>1.75 (0.66)</td>
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<tr>
<td>JD</td>
<td>3.03 (0.38)</td>
<td>.68</td>
<td>3.02 (0.39)</td>
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</table>

*Note. N = 147. EMB = embitterment, PRO = procedural justice; DIS = distributive justice; INT = Interpersonal justice; INF = Informational justice; SUP = Supervisory control; VIG = Vigor; DED = dedication; ABS = Absorption; JS = Job Satisfaction; NA= Negative affect; JD = Job demands*
### Table 4.2.

Zero order correlations between T1 and T2 variables

|   | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19  | 20  | 21  | 22  | 23  | 24  |
|---|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 1 | EMB | -   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 2 | EMB | .80** | -   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 3 | PRO | -.45** | -.35** | -   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 4 | PRO | -.42** | -.48** | .54** | -   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 5 | DIS | -.47** | -.39** | .62** | .48** | -   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 6 | DIS | -.41** | -.43** | .34** | .63** | .59** | -   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 7 | INT | -.51** | .45** | .48** | .36** | .30** | .15 | -   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 8 | INT | -.49** | -.50** | .36** | .60** | .37** | .44** | .56** | -   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |

Note. N = 147, *p < .05, **p < .01; T1 = Time 1; T2 = Time 2; EMB = Embitterment; PRO = Procedural; DIS = Distributive; INT = Interpersonal; INFO = Informational; SUP = Supervisory control; VIG = Vigor; DED = Dedication; ABS = Absorption; JS = Job Satisfaction; NA = Negative Affect; JD = Job Demands

(continued)
Table 4.2. continued

|     | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   | 21   | 22   | 23   | 24   |
|-----|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 9   | INF  | T1   | -.53** | -.46** | .56** | .48** | .41** | .27** | .69** | .54** | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    |
| 10  | INF  | T2   | -.49** | -.55** | .42** | .68** | .42** | .58** | .40** | .72** | .59** | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    |
| 11  | SUP  | T1   | .30**  | .36**  | -.18* | -.15  | -.09  | -.12  | -.19* | -.14  | -.13  | -.14  | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    |
| 12  | SUP  | T2   | .21*   | .34**  | -.16  | -.13  | -.11  | -.11  | -.16* | -.19* | -.07  | -.12  | .69** | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    |
| 13  | VIG  | T1   | -.41** | -.34** | .38** | .35** | .33** | .31** | .29** | .22** | .46** | .36** | -.22** | -.16  | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    |
| 14  | VIG  | T2   | -.34** | -.42** | .25** | .33** | .22** | .25** | .23** | .31** | .34** | .34** | -.19* | -.17* | .72** | -    | -    | -    | -    | -    | -    | -    | -    |
| 15  | DED  | T1   | -.35** | -.28** | .33** | .29** | .29** | .23** | .19** | .18** | .39** | .34** | -.07  | -.03  | .82** | .61* | -    | -    | -    | -    | -    | -    | -    |
| 16  | DED  | T2   | -.29** | -.39** | .23** | .33** | .20** | .24** | .14  | .26** | .30** | .33** | .13   | -.13  | .63** | .85** | .72** | -    | -    | -    | -    | -    | -    |

N = 147, *p < .05, **p < .01 T1 = Time 1; T2 = Time 2; EMB = Embitterment; PRO = Procedural; DIS = Distributive; INT = Interpersonal; INFO = Informational; SUP = Supervisory control; VIG = Vigor; DED = Dedication; ABS = Absorption; JS = Job Satisfaction; NA = Negative Affect; JD = Job Demands

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<td>.56**</td>
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<td>.31**</td>
<td>-.08</td>
<td>.09</td>
<td>.76**</td>
</tr>
</tbody>
</table>

N = 147, *p < .05, **p < .01. T1 = Time 1; T2 = Time 2; EMB = Embitterment; PRO = Procedural; DIS = Distributive; INT = Interpersonal; INFO = Informational; SUP = Supervisory control; VIG = Vigor; DED = Dedication; ABS = Absorption; JS = Job Satisfaction; NA = Negative Affect; JD = Job Demands.
4.3.4. Multiple Hierarchical Regression analysis – Hypothesis 1 (Embitterment T2 as outcome)

Controlling only for NA
In Model 1 significant control variable (NA) was entered (Step 1) followed by the predictor variables; distributive justice, procedural justice, interpersonal justice, informational justice and supervisory control (Step 2). The dependent variable (i.e. embitterment levels) was derived from T2 and the predictor variables from T1. The control variable was derived from T1. The results are displayed in Table 4.3.

In Model 1, the control variable (NA T1) accounted for 23% of the variance in embitterment (T2). The model as a whole explains 44.2% variability in embitterment. The predictor variable explained an additional 21.1% in the variance of the outcome even when the control variable (NA) has been statistically controlled for. With the exception of procedural and interpersonal justice, the remaining variables were statistically significant predictors. The predictor variables distributive justice (2.9% of the unique variance), informational (1.7% of the unique variance) and supervisory control (6.4 % of the unique variance) contributed significantly to the prediction of embitterment in T2.

Controlling for both NA and Baseline Embitterment (T1)
In Model 2, the baseline value (T1) for embitterment was controlled for (Step 1), followed by the same variables in the same order as in Model 1 respectively. The results are displayed in Table 4.3.

In Model 2, after controlling for the baseline level of embitterment (T1) and negative affect (T1) the hypothesised effects became non-significant, with the exception of supervisory control which explained 1.7% of the unique variance, even after taking into account the baseline levels of embitterment. Controlling for embitterment in T1 accounted for 65% of the
variance in embitterment (T2). The model as a whole explains 67% variability in embitterment T1.

4.3.5. Multiple Hierarchical Regression analysis – (changes in embitterment levels as outcome)

In Model 3 control variable (NA) was entered (Step 1) followed by the predictor variables; distributive justice, procedural justice, interpersonal justice, informational justice and supervisory control, (Step 2). All variables; dependent variable (i.e. embitterment levels) and the predictor variables and control variable, were derived from the changed scores between T2 and T1. Controlling for changes in NA accounted for 8% of the variance in changes in embitterment. The model as a whole explained 14% variability in changes in embitterment. Findings indicated that when controlling for changes in NA, changes in predictors did not significantly predict changes in embitterment.
Table 4.3

*Results From Multiple Regression Analysis Predicting Embitterment*

<table>
<thead>
<tr>
<th>Model</th>
<th>M1</th>
<th>M2</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>β</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Step 1**

<table>
<thead>
<tr>
<th>Predictor variables</th>
<th>Step 1</th>
<th>Step 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Embitterment at T1</td>
<td>_</td>
<td>.71***</td>
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</tbody>
</table>

**Step 2**

<table>
<thead>
<tr>
<th>Predictor variables</th>
<th>Step 1</th>
<th>Step 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>NA (T1)</td>
<td>0.29***</td>
<td>0.03</td>
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</tbody>
</table>

**Step 3 Predictor variables**

<table>
<thead>
<tr>
<th>Predictor variables</th>
<th>Step 1</th>
<th>Step 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Procedural justice</td>
<td>0.07</td>
<td>0.08</td>
</tr>
<tr>
<td>Distributive justice</td>
<td>-0.22**</td>
<td>-0.05</td>
</tr>
<tr>
<td>Interpersonal justice</td>
<td>-0.12</td>
<td>-0.04</td>
</tr>
<tr>
<td>Informational justice</td>
<td>-0.20*</td>
<td>-0.05</td>
</tr>
<tr>
<td>Supervisory control</td>
<td>0.26***</td>
<td>0.14**</td>
</tr>
</tbody>
</table>

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td></td>
<td>F</td>
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<tr>
<td></td>
<td>18.48***</td>
<td>39.97***</td>
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</table>

<table>
<thead>
<tr>
<th></th>
<th>ΔR²</th>
<th></th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>0.42</td>
</tr>
</tbody>
</table>

**Note.** In Model 1 (M1) dependent variable (embitterment) at Time 1 was not controlled for, whereas in Model 2 (M2) a baseline effect on a predicted variable is taken into account in the first step of each analysis. β, standardised beta-coefficients from the final step of the models.

*p<.05, **p<.01, ***p<.001.
4.3.6. Multiple Hierarchical Regression analysis – Hypothesis 2 (Embitterment T1 as predictor)

Controlling only for NA and Job Demands
In Model 4a, 5a, 6a & 7a significant control variables (NA and Job demands) were entered (Step 1) followed by the predictor variable embitterment, (Step 2). The dependent variables (i.e. engagement levels and satisfaction) were derived from T2 and the predictor variable from T1. The control variables were derived from T1.

Vigor
In Model 4a, the control variables (NA & JD, T1) accounted for 31% of the variance in Vigor. The model as a whole explains 33% variability in Vigor. The predictor variable (embitterment T1) explained an additional 2% in the variance of the outcome even when the control variables have been statistically controlled for. The predictor variable embitterment in T1 (2%) contributed significantly to the prediction of vigor in T2. Findings can be displayed on Table 4.4.

Dedication
In Model 5a, the control variable (NA & JD, T1) accounted for 35% of the variance in Dedication. The model as a whole explains 37% variability in Dedication. The predictor variable (embitterment T1) explained an additional 2% in the variance of the outcome even when the control variables have been statistically controlled for. The predictor variable embitterment in T1 (2% of the unique variance) contributed significantly to the prediction of dedication in T2. Findings can be displayed on Table 4.5.
Absorption

In Model 6a, the control variables (NA & JD, T1) accounted for 36% of the variance in Absorption. The model as a whole explains 36% variability in Absorption. The predictor variable (embitterment T1) accounted for an additional 1% in the variance of the outcome even when the control variables have been statistically controlled for. The predictor variable embitterment in T1 did not significantly predict Absorption in T2. Findings can be displayed on Table 4.6.

Job Satisfaction

In Model 7a, the control variables (NA & JD, T1) accounted for 14% of the variance in Satisfaction. The model as a whole explains 31% variability in Satisfaction. The predictor variable (Embitterment T1) explains an additional 18% in the variance of the outcome even when the control variables have been statistically controlled for. The predictor variable embitterment in T1 (2% of unique variance) contributed significantly to the prediction of satisfaction (17%) in T2. Findings can be displayed on Table 4.7.

Controlling for both control variables and Baseline Engagement and Job Satisfaction levels (T1)

In Model 4b, 5b, 6b, & 7b, the baseline value (T1) for each dependent variable was controlled for (Step 1), followed by the same variables in the same order as in Model 4a – 7a respectively.

As can be seen in Table 4.4 - Table 4.7 when controlling for the baseline level of vigor (Model 4b), dedication (Model 5b), absorption (Model 6b), and job satisfaction (Model 7b) respectively, the hypothesised effects become non-significant.
Table 4.4

*Results From Multiple Regression Analysis Predicting Vigor*

<table>
<thead>
<tr>
<th>Model</th>
<th>M4a</th>
<th>M4b</th>
</tr>
</thead>
<tbody>
<tr>
<td>β</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Step 1**

- Vigor at T1: _

**Step 2**

- NA (T1): -.22**
- JD (T1): .44***

**Step 3 Predictor variable**

- Embitterment: -.17*
- $F$: 23.46***
- $\Delta R^2$: .02

**Note.** In Model 4a (M4a) dependent variable (vigor) at Time 1 is not controlled for, whereas in Model 4b (M4b) a baseline effect on predicted variable is taken into account in the first step of each analysis. β, standardised beta-coefficients from the final step of the models.

* p<.05, ** p<.01, *** p<.001.
Table 4.5

*Results From Multiple Regression Analysis Predicting Dedication*

<table>
<thead>
<tr>
<th>Model</th>
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<th>M5b</th>
</tr>
</thead>
<tbody>
<tr>
<td>β</td>
<td>β</td>
<td>β</td>
</tr>
</tbody>
</table>

**Step 1**

Dedication at T1  
-  
.58***

**Step 2**

NA (T1)  
-.22**  
-.03

JD (T1)  
.54***  
.19*

**Step 3 Predictor variable**

Embitterment  
-.17*  
-.06

\[ F \]  
28.29***  
42.98***

\[ ΔR^2 \]  
.02  
.00

*Note.* In Model 5a (M5a) dependent variable (dedication) at Time 1 is not controlled for, whereas in Model 5b (M5b) a baseline effect on predicted variable is taken into account in the first step of each analysis. β, standardised beta-coefficients from the final step of the models.  
* *p*.05, ** *p*.01, *** *p*.001.
Table 4.6

*Results From Multiple Regression Analysis Predicting Absorption*

<table>
<thead>
<tr>
<th>Model</th>
<th>M6a</th>
<th>M6b</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>β</td>
<td>β</td>
</tr>
</tbody>
</table>

**Step 1**

- Absorption at T1
  - _
  - .53***

**Step 2**

- NA (T1)
  - -.20**
  - -.11

- JD (T1)
  - .51***
  - .23**

**Step 3 Predictor variable**

- Embitterment
  - -.12
  - -.03

- \( F \)
  - 27.52***
  - 40.27***

- \( \Delta R^2 \)
  - .01
  - .00

*Note. In Model 6a (M6a) dependent variable (absorption) at Time 1 is not controlled for, whereas in Model 6b (M6b) a baseline effect on predicted variable is taken into account in the first step of each analysis. \( \beta \), standardised beta-coefficients from the final step of the models. \( *p<.05, **p<.01, ***p<.001. \)
Table 4.7

*Results From Multiple Regression Analysis Predicting Job Satisfaction*

<table>
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<th>Model</th>
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<td>$\beta$</td>
<td>$\beta$</td>
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<tr>
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<tr>
<td>Job Satisfaction at T1</td>
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<td><strong>Step 2</strong></td>
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<td>-.12</td>
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<tr>
<td>JD (T1)</td>
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<td>.03</td>
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<td><strong>Step 3 Predictor variable</strong></td>
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<td>-.04</td>
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<tr>
<td>$F$</td>
<td>21.83***</td>
<td>48.03***</td>
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<tr>
<td>$\Delta R^2$</td>
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<td>.00</td>
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</table>

*Note.* In Model 7a (M7a) dependent variable (job satisfaction) at Time 1 is not controlled for, whereas in Model 7b (M7b) a baseline effect on predicted variable is taken into account in the first step of each analysis. $\beta$, standardised beta-coefficients from the final step of the models. $^*p<.05$, $^{**}p<.01$, $^{***}p<.001$. 
4.3.7. Multiple Hierarchical Regression analysis – (changes in embitterment levels as predictor)

In Model 8 control variables (NA and Job demands) were entered (Step 1) followed by the predictor variable embitterment, (Step 2). All variables; dependent variable (vigor), predictor variable and control variables were derived from the changed scores between T2 and T1. The control variables (negative affect and job demands change score) accounted for 1% of the variance in changed scores in vigor. The model as a whole explained 11% variability in changed scores in vigor. The predictor variable (changed scores in embitterment) explained an additional 2% in the variance of the outcome even when the control variables have been statistically controlled for. The predictor variable; changed scores of embitterment, did contributed significantly (12% unique variance) to the prediction of changed scores in vigor, when both changed scores of control variables were controlled for.

In Model 9 control variables (NA and Job demands) were entered (Step 1) followed by the predictor variable embitterment, (Step 2). All variables; dependent variable (dedication), predictor variable and control variables were derived from the changed scores between T2 and T1. The control variables (negative affect and job demands change score) accounted for 3% of the variance in changed scores in dedication. The model as a whole explained 13% variability in changed scores in dedication. The predictor variable (changed scores in embitterment) explains an additional 10% in the variance of the outcome even when the control variables have been statistically controlled for. The predictor variable; changed scores of embitterment, did contributed significantly (10% unique variance) to the prediction of changed scores in dedication, when both changed scores of control variables were controlled for.
In Model 10 control variables (NA and Job demands) were entered (Step 1) followed by the predictor variable embitterment, (Step 2). All variables; dependent variable (absorption), predictor variable and control variables were derived from the changed scores between T2 and T1. The control variables (negative affect and job demands change score) accounted for 1% of the variance in changed scores in absorption. The model as a whole explained 8% variability in changed scores in absorption. The predictor variable (changed scores in embitterment) explained an additional 6% in the variance of the outcome even when the control variables have been statistically controlled for. The predictor variable; changed scores of embitterment, did contributed significantly (6% unique variance) to the prediction of changed scores in absorption, when both changed scores of control variables were controlled for.

In Model 11 control variables (NA and Job demands) were entered (Step 1) followed by the predictor variable embitterment, (Step 2). All variables; dependent variable (job satisfaction), predictor variable and control variables were derived from the changed scores between T2 and T1. The control variables (negative affect and job demands change score) accounted for 9% of the variance in changed scores in satisfaction. The model as a whole explains 25% variability in changed scores in satisfaction. The predictor variable changed scores of embitterment, explained an additional 16% in the variance of the outcome even when the control variables have been statistically controlled for. The predictor variable; changed scores of embitterment, did contributed significantly (16% unique variance) to the prediction of changed scores in satisfaction, when both changed scores of control variables were controlled for. Findings of all models (8-11) can be found in Table 4.8.
Table 4.8
Results From Multiple Regression Analysis Predicting changed scores

<table>
<thead>
<tr>
<th>Model</th>
<th>M8</th>
<th>M9</th>
<th>M10</th>
<th>M11</th>
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<tr>
<td></td>
<td>β</td>
<td>β</td>
<td>β</td>
<td>β</td>
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</tbody>
</table>

**Step 1**

<table>
<thead>
<tr>
<th>Predictor variable</th>
<th>M8</th>
<th>M9</th>
<th>M10</th>
<th>M11</th>
</tr>
</thead>
<tbody>
<tr>
<td>NA (changed score)</td>
<td>.12</td>
<td>-.04</td>
<td>.02</td>
<td>-.16*</td>
</tr>
<tr>
<td>JD (changed score)</td>
<td>.09</td>
<td>.14</td>
<td>.08</td>
<td>.04</td>
</tr>
</tbody>
</table>

**Step 2 Predictor variable**

<table>
<thead>
<tr>
<th>Predictor variable</th>
<th>M8</th>
<th>M9</th>
<th>M10</th>
<th>M11</th>
</tr>
</thead>
<tbody>
<tr>
<td>Embitterment (changed score)</td>
<td>-.36***</td>
<td>-.37***</td>
<td>-.27**</td>
<td>-.42**</td>
</tr>
</tbody>
</table>

\[ F \]

|       | 7.15*** | 8.29*** | 4.00*** | 15.77*** |

\[ \Delta R^2 \]

|       | .12 | .10  | .06  | .16 |

*Note. M8; vigor, M9; dedication, M10; absorption, M11; job satisfaction.*
4.4. Discussion

4.4.1. Summary of findings

The present 6 month longitudinal study was conducted in order to address three main questions within the field of embitterment in the workplace; first it aimed to investigate the chronicity of workplace embitterment; whether it remains stable or whether it diminishes or escalates over a period of 6-months. As already mentioned in the results section, t-tests conducted between embitterment levels for T1 and T2, suggest that workplace embitterment remains fairly stable over a period of 6-months.

Secondly, it aimed to extend the findings of Study 1, by testing whether the four concepts of organisational justice and supervisory control in Time 1 would predict increased levels of embitterment at work in T2 (Hypotheses 1a, 1b, 1c, 1d, 1e). Hierarchical regression models revealed that only hypothesis 1b, 1c and 1e were supported by the findings; perceptions of distributive injustice and informational injustice as well as supervisory over-control in T1 significantly predicted embitterment in T2. However, it should be noted that after controlling for baseline levels of embitterment the relationship between embitterment and distributive and informational injustice disappeared. This could be due to the stability of embitterment during the 6-months period. Only the relationship between supervisory-control and embitterment remained significant after controlling for baseline embitterment.

The final aim of this study was to investigate whether embitterment in the workplace leads to reduced levels of work engagement and job satisfaction (Hypothesis 2a, 2b, 2c, 2d). Hypothesis 2a (vigor), 2b (dedication) and 2d (job satisfaction) were supported by the findings. However, it should be noted that after controlling for baseline levels of engagement and satisfaction the significant effects disappeared. Each of the findings will be discussed below.
The present study further contributes to the understanding of features of workplace embitterment such as that of its *chronicity*. This is the first longitudinal study conducted on embitterment in the workplace to justify the term “*chronic embitterment*” as introduced by Sensky (2010). Up until now the only findings that supported the notion that embitterment is “*chronic*” derived from clinical observations conducted by Linden (2003), who suggested a 3-months and over duration for embitterment. By adopting a longitudinal design, it was revealed that workplace embitterment is indeed chronic and is relatively stable through a 6-month period. Although the sample used in the present study was not highly embittered (see results section), yet levels of embitterment remained stable throughout the two time points. Findings from this study posited no variations in the mean levels of any of the main study variables during the 6-month time lag. Work engagement has also been found to be relatively stable over time (Schaufeli et al., 2002), as well as job satisfaction (Coomber & Barriball, 2007). The present findings further support this by revealing no time-related changes in the experience of work engagement and job satisfaction during the 6 months.

The finding that embitterment in the workplace is stable across time links with the literature on burnout. Both burnout and workplace embitterment are widely prevalent in work settings (Sensky, 2010). As Maslach, Schaufeli and Leiter (2001) suggested burnout is relatively stable over time if people stay in the same job. The stability of burnout has prompted effective interventions as an attempt to either treat burnout after it has occurred or prevent it. A combination of both changing managerial practices along with educational interventions have been found to be the most effective (Maslach et al., 2001). In the same line, embitterment is not a feeling that goes away on its own, rather as can be suggested in the present study, feelings of workplace embitterment are stable. Thus, this finding prompts the need for effective interventions that, as with burnout, can either treat/ameliorate embitterment or prevent it from arising. This was also the aim for the final study (see Chapter 5).
With regards to the first set of hypotheses and what predicts embitterment in the workplace, the results supported that perceptions of distributive injustice and informational injustice as well as supervisory over-control in T1 significantly predicted embitterment in T2. These results, are partially consistent with results from Study 1 (Michailidis & Cropley, 2016) which showed, using a cross-sectional study with a UK population, that procedural injustice and over-controlling supervision were significant predictors of embitterment in the workplace. Although the present study does not fully replicate the study conducted by Michailidis and Cropley (2016; Study 1), given that distributive and informational injustice were not significant predictors in the cross-sectional study, yet a key finding from both studies is that over-controlling supervision was the most significant and strongest predictor of embitterment in the workplace. In Study 1 over-controlling supervision explained 2.5% of the unique variance, and in the present longitudinal study it explained 1.4% of the unique variance, even after controlling for the baseline value of embitterment. These findings further support the conclusion drawn in Study 1, that organisational injustice in the form of lack of control in the way one can perform their work, can generate feelings of embitterment. However, the present study builds upon study 1 and takes it further; Michailidis and Cropley (2016) – study 1 (Chapter 3), was cross-sectional in nature, whereas the current study is longitudinal. Longitudinal studies are considered more robust than simple cross-sectional studies because measurements are temporarily sequenced such that one precedes the other in time. This is key— but not adequate alone— for establishing causality between variables.

As reported earlier, the present study revealed that distributive and informational injustice significantly predict embitterment. This was not the case in Study 1 however where only procedural injustice and over-controlling supervision were significant predictors of workplace embitterment. A possible reason for this, might be that the present study was conducted with a Cypriot population. The economic crisis of 2013 in Cyprus created a
framework for industrial restructuring, which subsequently led to employees’ redundancy, payment, allowance and pension cuts, limited opportunities for promotions and development, higher workload and taking over more responsibilities etc. (Ioannou, 2016). Such acts capture the essence of equity perceptions, based on the extent to which an employee feels fairly rewarded for the work they provide. Thus, one would expect to see a stronger link between distributive injustice and embitterment in Cypriot employees.

Regarding the second set of hypotheses, the present study adds to the Michailidis and Cropley (2016) findings on the consequences of embitterment on employees’ ability to adequately recover from work — an indicator of employees’ well-being — as it examined the impact embitterment has on employees’ performance as well as on an affective-motivational state of work-related well-being (i.e. work engagement). The fact that embitterment in T1 predicted reduced levels of work engagement and job satisfaction in T2, contributes further to the understanding of distinctive features of employees experiencing embitterment in the workplace. Embitterment in the workplace engenders employees to withdraw and disengage themselves from their work roles, by showing reduced levels of engagement and being less satisfied with their work. Drawing on the Social Exchange Theory, this makes theoretical sense. As Agarwal (2014) suggested, engagement can be viewed as a settlement for work environments characterised by fairness and just treatment. In the same vein, Saks (2006), argued that higher levels of engagement are a form of payback towards the company from employees who perceive organisational justice. This was indeed supported by the findings, as embitterment in Time 1 significantly predicted reduced levels of work engagement, as well as job satisfaction.

These results further support Linden’s et al., (2008) argument that individuals who experience embitterment as a result of injustice perceptions, might seek revenge in order to find justice. Indeed, Skarlicki and Folger (1997) have supported, that distributive, procedural
and interactional injustice can lead employees to engage in covert organisational retaliatory behavior such as intentionally working slower. Many studies have also shown a substantial relation between abusive supervision, including interpersonal mistreatment by a supervisor (Tepper, 2000), for example over-controlling supervision (Dupré & Barling, 2006), and retaliation behaviours (Tepper, Carr, Breaux, Geider, Hu, & Hua, 2009). Given the finding that over-controlling supervision predicts embitterment, one could argue that employees being over-controlled by their supervisors, retaliate against their supervisor through reduced levels of engagement. However, although beyond the scope of this thesis, this should be investigated further, as “retaliation behavior” is not limited in reduced engagement, but is a much broader concept including behaviours such as withdrawal of citizenship behaviours, psychological withdrawal and resistance behaviours.

Nonetheless, the present findings that workplace embitterment can predict reduced job engagement, also links with the literature on workplace deviance. Robinson and Bennett (1995) defined workplace deviance behavior as “a voluntary behavior of organisational members that violates significant organisational norms, and in doing so, threatens the well-being of the organisation and/or its members” (p.556). Deviance behaviours can arise from negative and unpleasant job affects, such as in this case feeling embittered. Indeed, evidence has supported that a key reason of why employees engage in deviant behaviours is perceived organisational injustice (Robinson & Greenberg, 1990). Bennett and Robinson (2000) also found a negative association between organisational deviance and procedural and interactional justice. Considering the literature and evidence on workplace deviance behavior therefore it seems that workplace embitterment can lead to deviance behavior directed to the organisation by showing reduced levels of engagement. It would be interesting in future research to see what other type of deviance behaviours (in an interpersonal and organisational level) embittered employees engage in.
The finding that embitterment interferes with employees’ work engagement links with the previous study (Study 1; Chapter 3) on the impact workplace embitterment has on employees’ ability to adequately recover from work. In Study 1 it was found that embitterment correlates with work-related rumination, an indicator of insufficient recovery. A link between recovery from work and work engagement has been established in previous studies. Kahn (1990) argued that physical, emotional, and psychological resources are key prerequisites for work engagement. This suggests that adequate recovery post work and the associated restoration of resources can benefit employees’ work engagement levels. This has been indeed supported by Sonnentag (2003) who found that individuals who feel sufficiently recovered during leisure time experience a higher level of work engagement during the subsequent working days.

In the present study embitterment significantly predicted only vigor and dedication at work; embitterment was not a significant predictor of absorption. Previous studies have supported that absorption is not that frequently experienced phenomenon in comparison to vigor and dedication that are considered as the core dimensions of work engagement (e.g. Langelaan, Bakker, van Doornen, & Schaufeli, 2006; Llorens, Schaufeli, Bakker, & Salanova, 2007). Both vigor and dedication have in common some motivational concepts. Vigor for instance, conceptually overlaps with the construct of intrinsic motivation, as it is characterised by high levels of energy and refers to an individual’s willingness to invest effort and being persistent at work (Deci & Ryan, 1985). Dedication refers to the deriving sense of significance, enthusiasm, inspiration and pride from one’s work and shares a conceptual similarity with the construct of job involvement (Brown, 1996). On the other hand, absorption refers to a state in which individuals are fully concentrated on and absorbed in their work and have difficulties in detaching themselves from work, and it might be that it does not overlap to such a great extent with motivational concepts. This finding deserves
more attention in future to clarify why embitterment predicts only vigor and dedication.

After controlling for the baseline level of each engagement measure and job satisfaction the relationship between embitterment in Time 1 and engagement as well as job satisfaction in Time 2 disappeared. Thus, the stable nature of both embitterment and work engagement, as well as job satisfaction, in the present study makes it difficult to detect significant consequences of embitterment. Schaufeli, Martinez, Pinto, Salavona and Bakker (2002) as well as Hallberg and Schaufeli (2006) have stressed that work engagement is likely to remain stable over time. The same applies to job satisfaction as supported by Coomber and Barriball (2007). The stability of embitterment should also be studied with a longer time lag than was studied in the present study (6 months).

4.4.2. Study Limitations

To date, this is the first longitudinal study on workplace embitterment and although the current study may have advanced our knowledge on embitterment in the workplace, there were also some limitations that are worth mentioning. One of the most significant limitations of this study is that the arguments of a causal relationship between (i) organisational injustice, supervisory control and embitterment and (ii) embitterment and engagement, job satisfaction, are not based on any experimental manipulation. While longitudinal study designs that collect data from two time points — as in the present study — are stronger than cross-sectional data, it is still not possible to conclude that over-controlling supervision caused embitterment or that embitterment causes reduced levels of work engagement. This is because data collection in the present study is still cross-sectional (collected at two time points).

It could be further argued that the longitudinal data and causal relationships between the study variables could have been better analysed using Structural Equation Modelling (SEM). SEM was not used to analyse the present data for two main reasons; Firstly, because
of the high attrition rates in Time 2 the final sample \(N = 169\) was not big enough to meet the minimum sample size requirements for conducting SEM. Kenny (2014) suggests that a minimum sample of 200 is the goal for SEM. Therefore, the sample size in this study \(N = 169\) appeared to be inadequate. Secondly, due to the high number of variables contained in the study, SEM analysis was not suitable for the present research study. Including such a high number of study variables in constructing longitudinal SEM models would have easily resulted in unnecessarily complicated models being difficult to interpret. If a smaller number of study variables was used in the study perhaps SEM could have been applied, however this would have had the drawback of being less informative considering that the study of embitterment is still in its infancy, and we are still trying to unfold unknown features of it.

Another limitation lies in the sample used in the present study. As discussed in the results section, the sample in the present study overall was not embittered, compared to the sample utilised in study 1 which showed much higher levels of workplace embitterment. Linden et al., (2009) recommended a cut-off score of 1.6 on the embitterment scale as a threshold of being embittered. The mean score of embitterment for both Time 1 and Time 2 in the present study was 1.28, indicating that the sample in general was not embittered. However, this was not a methodological limitation that could have been prevented as to avoid bias the study was not clearly addressed to embittered individuals. A possible recommendation for future research could be to include only participants who are embittered, following Linden et al.’s, (2003) cut-off score.

A further limitation lies in the validity of the measures used in the study. As mentioned in the method section, all scales and items were translated in Greek from the English version and were checked for accuracy with the method of back-translation by one professional translator and one bilingual (English and Greek) psychology researcher. However, with the exception of the Utrecht Work Engagement Scale (UWES; Schaufeli &
Bakker, 2003) which has been validated in Greek, the other scales have not been through proper validation. Future research should aim to assess and validate these scales.

As with study 1, the present study’s limitations are offset by the novelty of the findings. Notwithstanding the limitations inherent in the present longitudinal design study, this study is the first to explore what predicts embitterment in the workplace and what are the possible consequences of it, by using a longitudinal design. The findings also extend our understanding of the chronicity of embitterment.

4.4.3. Directions for future research

The present study provided a good platform to explore what are the predictors and consequences of experiencing embitterment in the workplace, as well as its chronicity across time. There are several interesting avenues for future research that could increase our understanding of the feeling of embitterment in the workplace. Firstly, as referenced above, further empirical work is needed to explore the causal relationships between (i) organisational injustice, supervisory control and embitterment as well as (ii) embitterment and engagement, job satisfaction. More precisely, implementing a longitudinal study with more measurement points over a longer period of time, would indicate more clearly whether it is a one-way causal relationship from over-controlling supervision to embitterment or from embitterment to reduced levels of engagement. Nonetheless, with more measurement points over a longer time period, it would be possible to further assess the chronicity of embitterment. Although the present findings suggest that embitterment is stable, perhaps using a different time lag (e.g. 12-24 months) might reveal that embitterment escalates over time.

Also, future studies may assess the impact embitterment has on other positive attitudes towards work and towards the organisation such as lower turnover intention, organisational commitment and identification, but also to positive organisational behaviours.
such as personal initiative and learning motivation, extra-role behaviour, and proactive behaviour. Nonetheless, future research should also examine embittered employees’ possible psychosomatic complaints and physical health symptoms.

The findings of the present study that embitterment is relatively stable over time if people stay in the same job, engenders the need for effective interventions designed to ameliorate embitterment and its consequences. To date there is no agreed treatment for embitterment. The lack of effective interventions for embitterment has led to the design and implementation of the final study (Study 3; Chapter 5), which aimed to test an employee-centered intervention on ‘healthy’ employees who experience embitterment in their workplace; a point discussed in more detail in Chapter 5. Therefore, the following chapter describes the implementation of an expressive writing intervention using a randomised control trial.

4.4.4. Conclusions

Taken together, this longitudinal study has further advanced our understanding on embitterment in the workplace. In addition of interfering with employees’ ability to adequately recover from work, as Study 1 suggests, embitterment in the workplace can also interfere with employees’ levels of work engagement and job satisfaction. In line with Study 1, the present study has also found that over controlling supervision is a significant predictor of workplace embitterment. In the context of identifying ways to prevent workplace embitterment arising, this appears to be an important finding.
Chapter 5

Study 3. Healing the Wounds of Embitterment: Exploring the benefits of Expressive Writing using a randomised control trial

Chapter 4 showed that embitterment is not a feeling that goes away on its own, rather feelings of workplace embitterment are stable over a period of 6-months. Thus, this finding prompts the need for an effective intervention that can significantly reduce feelings of embitterment and the subsequent consequences of it. This was the main aim of Study 3.

5.1. Introduction

Perceived breaches in organisational justice and unfair treatment in the workplace have been associated with employees’ experiences of workplace embitterment (Michailidis & Cropley, 2016; Sensky et al., 2015). Linden defined embitterment as “an emotion encompassing persistent feelings of being let down, insulted and of being revengeful but helpless” (2003, p.197). Experiencing embitterment in the workplace can take a toll on employees’ well-being. Findings from study 1 indicated that experiencing embitterment can interfere with employees’ ability to adequately recover from work due to repetitive or ruminative thinking about work-related issues (Michailidis & Cropley, 2016). A plethora of studies have supported that inadequate psychological recovery from work can predict a range of health complaints such as acute and chronic fatigue (Querstret & Cropley, 2012), poor sleep quality (Cropley et al., 2006), emotional exhaustion (Sonnentag, Kuttler, & Fritz, 2010), and even risk for cardiovascular disease (Suadicani, Hein, & Gyntelberg, 1993; Cropley et al., 2017). Experiencing embitterment in the workplace has also been associated with reduced levels of employees’ work engagement and job satisfaction (Chapter 4; study 2). Employees’ work engagement has been defined as an affective-motivational state of work-related well-being. Researchers have claimed and supported that employee engagement
predicts organisational success, financial performance and most importantly outcomes such as organisational commitment (Saks, 2006; Hartet, Schmidt, & Hayes, 2002).

Given the detrimental consequences embitterment can have on employees’ well-being and job performance there is a growing need for effective interventions that can significantly reduce feelings of embitterment and the subsequent consequences of it. To date, only one intervention has been found to be effective in ameliorating symptoms of embitterment.

Linden et al., (2011) have presented preliminary evidence for the benefits of wisdom therapy among those who suffer from embitterment. In the context of wisdom therapy, wisdom is defined as expertise knowledge in coping with difficult or unsolvable life problems. According to Linden et al., (2011) people suffering from embitterment reactions are deficient in wisdom skills when it comes to understanding and solving personal problems. However, as indicated in Linden et al.’s (2011) intervention study, these deficiencies in wisdom-related performance (e.g. change of perspective, empathy, perception and acceptance of emotions, etc.) can be learned and taught and those suffering from embitterment can benefit from it.

Although this is the first intervention study for individuals suffering from embitterment, there are some main limitations that raise questions as to whether wisdom therapy is the answer to treating workplace embitterment. To begin with the sample consisted of inpatients who were referred after prolonged periods of sick leave or due to inability to work and who already received treatment (e.g. CBT, ergotherapy sessions, sport therapy sessions, social counselling and medical treatment) in an inpatient setting. Therefore, many unspecific or additional treatment influences could have had an impact on the actual effect of wisdom therapy on embitterment. Moreover, the participants who took part in the intervention were inpatients of a department of behavioural and psychosomatic medicine, therefore the generalizability of the findings can be questioned. In general, wisdom therapy can be costly, time-consuming and not that easy-to-use intervention as it is delivered by
cognitive behavioural therapists and clinical psychologists specifically trained on wisdom strategies and competencies and the therapy can take up to 6 weeks (Linden et al., 2011).

Considering the aforementioned, there seems to be a lack of intervention studies aimed at ameliorating embitterment and its consequences. Although Linden’s treatment approach was found to be effective, the intervention was solely administrated to inpatients who were no longer working. In the present study, the effectiveness of an employee-centered intervention on ‘healthy’ employees who were not receiving any form of psychological therapy, but who experience embitterment in their workplace was tested. In the context of workplace embitterment, an inexpensive and easy-to-use employee-centered intervention might be more effective than an organisation-centered intervention, as evidence supports that organisations and managers tend to underestimate the emotional and cognitive toll of injustice on the employee (Kramer & Neale, 1998). Embitterment is triggered in the aftermath of an unjust and unfair event. Employees experiencing unfairness and organisational injustice often deal with this distress alone, as their managers might not realise that a violation has occurred or they might even be unable or unwilling to repair the violation. Therefore, focusing on the employee’s perspective might be more effective in healing the wounds of embitterment.

Expressive writing, as an employee-centered intervention, could potentially mitigate the negative consequences of experiencing embitterment in the workplace. Several studies have supported that the use of this time-efficient and relatively easy to apply intervention can have a long-term positive impact on a variety of physiological health outcomes such as reducing blood pressure (McGuire, Greenberg, & Gevirtz, 2005) and increasing the immune function (Petrie, Fontanilla, Thomas, Booth, & Pennebaker, 2004) but also on psychological health outcomes including reducing anxiety and depression (Lepore, 1997), the effects of trauma (Smyth & Helm, 2003), insomnia and sleep disturbances (Arigo & Smyth, 2012;
Harvey & Farrell, 2003), and also mitigating the negative consequences of experiencing organisational injustice such as anger (Barclay & Skarlicki, 2009). In the present study, it was investigated whether the expressive writing intervention can reduce feelings of workplace embitterment and mitigate the negative consequences of it.

**Overview of the expressive writing intervention**

The basic writing paradigm was initially put forward by Pennebaker (Pennebaker & Beall, 1986) and although variations exist, the typical expressive writing paradigm randomly assigns participants to write about either a negative, emotionally, upsetting experience (experimental group), or about a factual topic (e.g. factual description of their daily routine; control group) for 20 minutes a day for three consecutive days. Individuals are then followed up to investigate whether the intervention was beneficial for them by comparing changes between baseline and follow up well-being indices. Even though participants report increase negative affect (e.g. crying and being deeply upset) right after reliving memories associated with the upsetting/traumatic event, in the long-term they report more positive evaluations of the expressive writing interventions and significant health and well-being improvements are found (Pennebaker & Chung, 2011). Various factors such as timing between writing sessions, time writing after trauma, individual differences (e.g. individual’s emotional coping regulation capabilities) can impact the extent to which individuals benefit from writing (Pennebaker & Chung, 2011). In general, individuals who write about a negative experience report better physical and psychological health at the completion of the intervention compared to those in the factual writing group (Smyth, 1998).

Although various lines of research support that the expressive writing paradigm can produce positive health outcomes, no single theory appears to account for its effectiveness. According to Pennebaker (2004), a single explanatory theory for how and why expressive writing works is unlikely due to the fact that expressive writing impacts people on multiple
levels; emotional, cognitive, and social. From an emotional perspective, writing about an upsetting experience can help individuals confront their experience by reducing “inhibition” effects (Barclay & Skarlicki, 2009). Based on the inhibition theory, inhibiting or suppressing one’s emotions and thoughts can act as a coping mechanism for negative experiences (Pennebaker, 1997). However, the act of inhibition can lead to negative psychological and physiological consequences to the individual, as it limits individual’s ability to cognitively process the experience, leading thus to increased rumination, sleep and thought disturbances, which in turn undermine physiological health and increase the risk of illness (Pennebaker, 1997). From this perspective, when people are asked to re-experience and verbalise an upsetting experience emotional disinhibition is facilitated, individuals actively think about the experience and acknowledge their emotions. Disinhibition of emotions through writing can thus reduce physiological and psychological processes associated with inhibition and mitigate stress caused by the upsetting experience (Pennebaker, 1997). However, the emotional inhibition theory has not received that much support as real-world inhibitory processes are far more difficult to measure (Pennebaker & Chung, 2011).

From a cognitive perspective, translating an experience into language can facilitate cognitive reappraisal, which is defined as “a positive change in the evaluation of stressors and/or the self” (Lu & Stanton, 2010, p. 670). According to Lazarus and Folkman’s (1984) theory of cognitive appraisal, stress influences health outcomes via appraisal. Engaging in expressive writing enables the individual to assign meaning, coherence, and structure to his/her experience, allowing the individual thus to reappraise and improve comprehension of the stressful experience making the situation be seen as less overwhelming and more resolved. In turn, reappraisal of the experience can be postulated as a key pathway in reducing the negative affect associated with the upsetting experience and producing beneficial long-term effects through expressive writing (Pennebaker, Mayne, & Francis,
Barclay and Skarlicki (2009) further argued that the expressive writing intervention allows the individual to cognitively process the situations and engage in sense making—a process in which individuals create understanding so that they can act in an ethical and informed manner. By creating a narrative of the experience individuals can resolve ambiguities about the event (Roberson & Stevens, 2006) and get a better understanding of their reality by making retrospective sense, making thus the situation seem more meaningful.

From a social perspective, writing about emotional topics can facilitate and foster the individual’s social integration with his/her social networks (Pennebaker & Graybeal, 2001). Writing about an upsetting experience can subtly affect people’s social lives, as individuals are more likely to alter how they talk and interact with others. Studies have indeed indicated significant changes in patterns of speaking, use of references, and use of positive emotion words following the intervention (Mehl & Pennebaker, 2003). Moreover, writing about emotional upheavals can encourage individuals to share their experience with others, to change their friendship networks and to laugh more (Pennebaker, Barger, & Tiebout, 1989).

Therefore, although a single theory cannot explain the effectiveness of expressive writing, existing literature and evidence suggests that writing about emotional upheavals can benefit psychological and physiological wellbeing through allowing emotional expression, cognitive reappraisal and social integration.

**Relating Expressive Writing to Experiences of Workplace Embitterment**

The expressive writing intervention is based on post-traumatic stress theory and the idea that putting an upsetting experience into words is an effective adaptive coping mechanism in response to trauma (Pennebaker, 1993). The intervention has been found to be effective for both traumatic experiences such as the death of a loved one (Sloan & Marx, 2004) but also for stressful life events such as entering college (e.g. Pennebaker, Colder, & Sharp, 1990). However, limited attention has been paid on how expressive writing can benefit employees’
work-related experiences. Exceptions include Spera et al.,’ study (1994) on recently unemployed professionals, where it was found that those in the expressive writing group were more likely to get reemployed than those who wrote about a non-traumatic event. According to the authors, participants were able through expressive writing to reflect on their negative emotions and attain closure regarding their job loss, which in turn prevented their negative emotions to rise in job interviews. Francis and Pennebaker (1992) have also found that one of the behavioural enhancements attributable to expressive writing include reduced absenteeism from work. Another study that has used expressive writing in the work context is that of Barclay and Skarlicki (2009), who looked at the impact expressive writing has on employees’ experiences of organisational injustice. Findings revealed that post-intervention participants who wrote about their emotions and thoughts reported higher psychological well-being, less anger, fewer intentions to retaliate, and higher levels of personal resolution. Finally, Kirk, Schutte, and Hine (2011) in a more recent study found that an expressive writing intervention increased employees’ self-efficacy, emotional intelligence and positive affect, and decreased workplace incivility perpetration. A summary of studies conducted on how expressive writing can benefit employees’ work-related experiences is presented on Table 5.1.

It can be considered that the expressive writing intervention can be effectively applied to experiences of workplace embitterment because of the similarities between traumatic experiences and embitterment. Linden et al., (2008) have noted that as with PTSD, embittered individuals experience distress, negative emotions, ruminations and features of hypervigilance and hyperarousal. Individuals experiencing embitterment often reject help from others, see themselves as victims and hold an aggressive attitude towards the person/event responsible for their negative state which hinders the development of a new perspective on what has happened (Linden, 2008). It seems plausible therefore to consider expressive writing intervention being relevant for experiences of embitterment.
Table 5.1

**Summary of studies conducted on how expressive writing can benefit employees’ work-related experiences**

<table>
<thead>
<tr>
<th>Authors &amp; Date</th>
<th>N</th>
<th>Population</th>
<th>Measures</th>
<th>Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Francis &amp; Pennebaker</td>
<td>41</td>
<td>Employees</td>
<td>• Blood measures</td>
<td>Participants who wrote about traumatic experiences showed lower levels on blood measures and reduction in absentee rates from work.</td>
</tr>
<tr>
<td>(1992)</td>
<td></td>
<td></td>
<td>• Absentee rates from work</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td>• Health questionnaire adapted from the Pennebaker Inventory of Limbic Languidness &amp; the Southern Metodist University Health Questionnaire</td>
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<td></td>
<td></td>
<td></td>
<td>• The Transition-search Behavior Questionnaire</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>• Physical symptoms (e.g. upset stomach)</td>
<td></td>
</tr>
<tr>
<td>Spera et al., (1994)</td>
<td>63</td>
<td>Unemployed professionals</td>
<td></td>
<td>Those assigned in the expressive writing group were reemployed more quickly.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Physical symptoms</td>
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<td></td>
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<td></td>
<td>• Psychological wellbeing (Satisfaction with life scale)</td>
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<td></td>
<td></td>
<td></td>
<td>• Anger (State-Trait Anger Expression Inventory)</td>
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<td></td>
<td></td>
<td></td>
<td>• Retaliation intentions</td>
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<td></td>
<td></td>
<td></td>
<td>• Personal resolution</td>
<td></td>
</tr>
<tr>
<td>Barclay &amp; Skarlicki (2009)</td>
<td>100</td>
<td>Employees</td>
<td>• Self-efficacy</td>
<td>Post-intervention participants who wrote about their emotions and thoughts reported higher psychological well-being, less anger, fewer intentions to retaliate, and higher levels of personal resolution.</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>• Transformational leadership</td>
<td></td>
</tr>
<tr>
<td>Fitzgerald &amp; Schutte (2010)</td>
<td>118</td>
<td>Managers</td>
<td>• Self-efficacy</td>
<td>Managers in the intervention condition showed significantly greater transformational leadership self-efficacy and higher transformational leadership scores than the control group managers at post-test.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Transformational leadership</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Emotional self-efficacy</td>
<td>Expressive writing intervention increased employees’ self-efficacy, emotional intelligence and positive affect, and decreased workplace incivility perpetration.</td>
</tr>
<tr>
<td>Kirk et al., (2011)</td>
<td>49</td>
<td>Employees</td>
<td>• Assessing emotions</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• PA &amp; NA</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Workplace incivility</td>
<td></td>
</tr>
</tbody>
</table>
**Hypothesis 1:** Compared to completion of a factual writing task (control group), completion of an expressive writing task (experimental group), will significantly reduce levels of workplace embitterment.

As already discussed workplace embitterment has been found to interfere with employees’ ability to adequately recover from work (Michailidis & Cropley, 2016) because of increased engagement in affective work-related rumination and decrease engagement in detachment. It was expected that along with reduced levels of embitterment, expressive writing will significantly reduce outcomes related to embitterment such as that of work-related rumination. Expressive writing can enable employees who experience embitterment to detach and switch-off from work by cognitively reappraising any negative thoughts and feelings and upsetting emotions become less potent and more manageable. Some preliminary analysis has provided support for the benefits of expressive writing on rumination. More specifically, Rude and Pennebaker (2006) have provided support for the benefits of an expressive writing intervention on reducing depression symptoms of depression-vulnerable students by mediating changes in ‘brooding’ rumination. ‘Brooding’ rumination closely resembles the concept of ‘affective’ rumination, which is defined as a cognitive state characterised by the appearance of intrusive, pervasive, recurrent thoughts about work, resulting in a negative emotional response (Cropley et al., 2012), suggesting therefore that an expressive writing intervention would be effective for work-related affective rumination as well.

**Hypothesis 2a:** Compared to completion of a factual writing task, completion of the expressive writing task will significantly reduce levels of work-related affective rumination.

**Hypothesis 2b:** Compared to completion of a factual writing task, completion of the expressive writing task will significantly increase levels of detachment.
Moreover, it is expected that by providing employees with the opportunity to vent their emotions and cognitively process the negative experience, employees will feel more engaged and satisfied with their work. According to Schaufeli et al., (2002) when engaged, individuals show high levels of energy and mental resilience while working. They become strongly psychologically involved and get more engrossed in their work. When experiencing embitterment, for example because of unfairness in their workplace, employees report lower levels of engagement and job satisfaction (Chapter 4; study 2). Reduced engagement in employees who experience embitterment in their workplace can on the one hand be seen as a form of ‘revenge’ and retaliation to the organisation and on the other hand could be an indication of depression and hopelessness. By releasing their emotions and thoughts through writing, employees’ emotions are less likely to escalate while at the same time they gain a broader perspective, become more objective and they can distance themselves from the situation (Pennebaker, 1997). In turn, this cognitive processing of the situation can prevent employees from being less engaged and less satisfied with their work. Indeed, Kirk et al., (2011) have supported that expressive writing can be an effective strategy for increasing positive workplace outcomes.

*Hypothesis 3a:* Compared to completion of a factual writing task, completion of the expressive writing task will significantly increase levels of vigor.

*Hypothesis 3b:* Compared to completion of a factual writing task, completion of the expressive writing task will significantly increase levels of dedication.

*Hypothesis 3c:* Compared to completion of a factual writing task, completion of the expressive writing task will significantly increase levels of absorption.

*Hypothesis 3d:* Compared to completion of a factual writing task, completion of the expressive writing task will significantly increase levels of job satisfaction.
Finally, in the present study the negative impact embitterment might have on health-related difficulties and particularly sleep and the possible benefits expressive writing might have on employees’ sleep disturbances was also investigated. Poor sleep can be a precursor of health and well-being impairments. During the last decade sleep disturbances have been on a rise (National Sleep Foundation, 2015). A key reason for sleep disturbances (in the form of insomnia, inadequate or disrupted sleep) is thought to be the impact of working life (Åkerstedt, Fredlund, Gillberg, & Jansson, 2002). For instance, Åkerstedt et al., (2002) found that work stress and workload interfere with sleep. In turn, impaired sleep has been found by various lines of research to lead to detrimental consequences for the individual. For example, Jansson-Fröjmark and Lindblom (2008) have found a bidirectional relationship between on one hand, anxiety and depression and, on the other hand, insomnia over the course of a year. Scott and Judge (2006) further revealed that insomnia was negatively related to job satisfaction. Studies have also investigated the relationship between sleep quality and rumination. Thomsen, Mehlsoen, Christensen and Zachariae (2003), found that rumination was significantly associated with subjective sleep quality even after controlling for negative mood. Likewise, Querstret and Cropley (2012), investigated the relationship between work-related rumination and sleep quality and found that affective rumination and problem-solving pondering were significantly associated with poor sleep.

Given the existing evidence on the relationship between sleep, stress and rumination, it was expected that embitterment would negatively impact sleep. If the employee is experiencing perceived unjust and unfair events and feels embittered in his/her workplace, the employee will be more likely to experience impaired sleep. Findings from study 1 (Michailidis & Cropley, 2016) provided evidence that embitterment interferes with employees’ ability to adequately recover from work due to work-related rumination. The association between poor sleep and work-related rumination has also been supported (Querstret & Cropley, 2012). Thus, given the
aforementioned, it makes sense to consider embitterment as being associated with impaired sleep.

*Hypothesis 4a:* Embitterment will be positively correlated with sleep difficulties as measured on the Insomnia Severity Index (ISI).

*Hypothesis 4b:* Compared to completion of a factual writing task, completion of the expressive writing task will significantly improve sleep quality.

5.2. Method

5.2.1. Ethical considerations

Before commencing data collection, the study received Ethical approval (UEC/2016/049/FHMS; Appendix I) from the University of Surrey Ethics committee. Considering the withholding of the intervention to the factual writing group, upon completion of the study the control group was given the opportunity to complete the expressive writing component once the findings of the study had been tested and the expressive writing intervention was found to be effective.

5.2.2. Design

To test these hypotheses a double-blind parallel group randomised controlled trial (i.e. a two-armed trial [two conditions] was employed in which every participant was randomised to one of two groups [experimental vs. control group]), with a two by three repeated measures design. The between subjects variable was the type of intervention (factual writing or expressive writing). The within subjects variable was the time of measurement; baseline, one month and three months after intervention. The primary dependent variable was the embitterment levels as indicated on the PTED scale. The secondary dependent variables were the scores on the measures of work-related rumination (WRPQ), sleep quality (ISI), work
engagement (UWES) and job satisfaction (JSS). Participants’ responses on the Follow-up Questionnaire on Participant’s subjective Experience (end of intervention) served as a manipulation check for the writing instructions. This method has been previously used by Gortner et al., (2006), where they found that participants in the expressive writing condition reported “thinking about” what they wrote, and “talking to other people” about what they wrote more than those in the factual writing condition. Also, participants in the expressive writing condition reported that they would be more “likely to participate in this study in the future”. The FQPSE was also administrated in order to gain a sense of what subjective benefits participants took from the study.

5.2.3. Participants

Sample size calculation. A priori power analysis was conducted using G*power 3.1.9.2 (Faul, Erdfelder, Buchner, & Lang, 2009) to identify the sample size that would be needed to achieve 95% power when using a two by three mixed ANOVA to analyse the results. The commonly reported effect size (Cohen’s $d = .47$) for an expressive writing intervention was used (Smyth, 1998). The analysis determined that a sample size of 44 participants would provide 95% power. However, in order to compensate for attrition from baseline to the three months follow-up, the figure of 44 was used to indicate the minimum number of participants (22 participants in the experimental group and 22 participants in the control group). Therefore, within the given time constraints, the largest number of participants possible, were aimed to be recruited.

Recruitment & details. Full-time adult employees working in the UK from a wide range of occupations, were welcomed to take part in the study. The rationale for this was to promote the likelihood of securing a relatively generic sample of employees rather than a sample from a specific occupational background. A convenience sampling strategy was used, as participants
were recruited through the researcher’s professional networks. The study was also advertised through professional networking sites (LinkedIn). Individuals who choose to participate were encouraged to circulate the link to their colleagues, families and friends. HR managers of companies were also approached and asked if they could invite their employees to take part in the study. Posters advertising the study were also put up on the University’s dedicated poster boards, so that University of Surrey staff could take part in the intervention as well.

In total 179 working adults completed the screening questionnaire. Out of these 179, 87 were eligible to take part in the study. The remaining 92 participants did not meet the eligibility criteria for the following reasons: score on PTED scale < 1.6 (N = 73); were not willing to commit to the writing exercise (N = 14); or they were receiving other forms of therapy (N = 5). Eighty-seven participants were invited to take part in the main study and complete the baseline measures. Out of these 87, 65 completed the baseline measures and were randomised into either the expressive writing group (EW; N = 33) or the factual writing group (FW; N = 32). Figure 5.1. illustrates participants flow from screening to follow-up.

The sample was comprised of 44 full-time working adults (female = 61.1%; n = 22) with an age range of 21-66 years (M = 34.22, SD = 11.39). Nineteen participants (52.8%) worked on average 31-40 hours per week and the majority of them (17 [47.2%]) have worked in their current role for 1-3 years. More than half of the participants (22 [61.1%]) were University educated. Sample specifics for each of the study groups are presented in Table 5.2.
Figure 5.1. Participant flow diagram – CONSORT copyright
### Demographic variables for study groups

<table>
<thead>
<tr>
<th>Demographics</th>
<th>EW</th>
<th>FW</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total number of participants</td>
<td>23</td>
<td>21</td>
</tr>
<tr>
<td>Total number of females (%)</td>
<td>17 (73.9%)</td>
<td>8 (52.4%)</td>
</tr>
<tr>
<td>Age range in years (M; SD)</td>
<td>21-66</td>
<td>23-54</td>
</tr>
<tr>
<td>(M; SD)</td>
<td>(33.74; 12.40)</td>
<td>(34.19; 10.04)</td>
</tr>
<tr>
<td>Highest % of hours per week (%)</td>
<td>41-50 hrs (52.2%)</td>
<td>31-40 hrs (61.9%)</td>
</tr>
<tr>
<td>Highest % of years in current role (%)</td>
<td>1-3 years (31.6 %)</td>
<td>1-3 (64.7%)</td>
</tr>
<tr>
<td></td>
<td>6 months-1 years (31.6%)</td>
<td></td>
</tr>
<tr>
<td>Number university educated (%)</td>
<td>89.4 %</td>
<td>94.1 %</td>
</tr>
</tbody>
</table>

*Note. EW = expressive writing group; FW = factual writing group; Job types (N [%]): EW group – business, consulting and management (1 [5.3%]), engineering and manufacturing (1 [5.3%]), healthcare (5 [26.3%]), information technology (2 [10.5%]), marketing, advertising and PR (1 [5.3%]), recruitment and HR (2 [10.5%]), research/science (7 [36.8%]), teaching and education (2 [10.5%]). FW group – business, consulting and management (1 [5.9%]), engineering and manufacturing (3 [17.6%]), healthcare (3 [17.6%]), information technology (1 [5.9%]), law (1 [5.9%]), recruitment and HR (2 [10.5%]), research/science (2 [11.8%]), teaching and education (2 [11.8%]), other (3 [17.6%]).*
5.2.4. Intervention

The intervention is adapted from an expressive writing exercise developed by Pennebaker and Beall (1986), which has standard instructions and is widely used (e.g. Smith et al., 2015; Jones et al., 2015). The intervention was conducted in the participant’s own home to reduce the barriers to participation (transport, time, etc.). Participants were asked to write for 20 minutes on each of three consecutive days. Writing packs were posted to the participants’ home address. The writing pack contained general instructions (Appendix J) followed by specific instructions, held in an envelope, for completing the intervention on each of the three consecutive days, and these varied between the expressive writing group (Appendix K) and the factual writing group (Appendix L). The packs also contained blank A4 response sheets. A free post envelope, with the name and address of the researcher printed on the front was placed in the pack, so that participants could post their responses back to the researcher.

Writing instructions

Participants in both experimental and control group were instructed to write for twenty minutes a day for three consecutive days. They were instructed not to be concerned about spelling, sentence structure or grammar. The instructions regarding writing content given to the two groups differed as noted below:

The Factual Writing Group: On ‘day 1’ participants in the factual writing group were instructed to write a factual description of their daily routine by the time their alarm went off. They were prompted to include a factual description of the places and buildings they passed or visited during the day, with as much detail as possible. On ‘day 2’ they were instructed to give a factual account and description of what they ate on the previous day, whom they were with, the times they ate, again in as much detail as possible. Finally, on ‘day 3’ they were
asked to write about the interests or activities they like to do, again including as much factual
detail as possible.

**The Expressive Writing Group:** On ‘day 1’ participants in the expressive writing group
were instructed to write about their deepest thoughts and feelings about work. They were
given the example of writing about a stressful situation that continues to bother them, that
they might have found difficult to talk about and that makes them feel upset, and they keep
thinking about. It was also suggested that it should be an experience that they have not shared
too much with others. They were encouraged to really ‘let go’ in their writing and explore
their inner thoughts and feelings. It was also suggested to them to think about a situation in
terms of others, and that they might like to link these experiences with the past, the present or
future. On ‘day 2’ and ‘day 3’ they were given the same instructions to write about their
thoughts and feelings about work. It was suggested that it can be the same topic as on the
previous days or a new topic, and again they were encouraged to ‘let go’ and explore their
thoughts and feelings.

**5.2.5. Procedure (Figure 5.2.)**

*Screening* (Time 1a). To begin with, participants who showed interest in taking part in the
study were given an online information sheet and consent form. They were then asked to tick
a box to signal their consent to take part in the study and they were clearly informed of their
rights and the fact that they can withdraw at any time during completing the study up to the
point where the data is analysed, without providing a reason. Then they were asked to
complete the online screening questionnaire including the PTED scale. To be eligible for
inclusion, participants had to meet the following criteria: 1) 18 years of age or older; 2)
working full-time (or min of 30 hours per week); 3) ability to commit 20 minutes per day for
three consecutive days for the duration of the intervention; 4) access to the Internet; 5) not
receiving any other form of psychological therapy or plans to start any other form of psychological therapy throughout the duration of the study; 6) living and working in the United Kingdom; 7) reporting moderate to high levels of embitterment in the workplace. To assess levels of embitterment in the workplace, participants completed the PTED scale and they must show an average score of 1.6 or above on the PTED scale, as suggested by Linden et al., (2009). Participants who did not meet the eligibility criteria were emailed to thank them for their interest in the study and to explain why they did not qualify for entry onto the study.

**Baseline measures** (Time 1b). Participants who were eligible to take part in the study were emailed a link to the online survey including all baseline measures. They were asked to provide their full name and home address so that the researcher can post to them the writing package.

**Randomisation process and intervention** (Time 2). Participants who were eligible were randomised to either the experimental group (expressive writing group) or the control group (factual writing group). To ensure that the allocation was random, a random number generator on the Microsoft Excel program was used to create a random number between 1-2 for each participant in a batch of 6 (for every 6 participants that were eligible to partake in the study, a randomisation took place using the random number generator on the Microsoft Excel program. By this, both randomisation but also equal number of participants in each group was ensured). The participants were then sorted by ascending number and divided to two even groups. The group with the lower numbers was allocated to the control group (factual writing group) and the group with the higher numbers was allocated to the experimental group (expressive writing group). Participants were thus blinded to condition group (experimental vs. control) as they were not able to choose which group they were allocated to, and they were not aware that the study was designed as a randomised control trial; they were simply told that they are taking part in a writing exercise.
Figure 5.2. Procedure flow diagram (adapted from CONSORT 2010 flow diagram template)
Depending on their allocation group, participants received the relevant instructions for completing the writing task; either the expressive writing instructions or the factual writing instructions. In order to ensure a double-blind RCT (identity of intervention condition being concealed from both participants and researchers), a research assistant prepared the writing packs. She initially allocated a unique numerical identifier for each participant along with the condition the participant was allocated in (expressive vs. factual writing). The research assistant wrote the name and address of participants on each writing pack. The writing packs were then sealed and given to the principal researcher (EM) to post them to the participants. In this way, the principal researcher’s blinding to participants’ condition was ensured.

*Follow-up* (Time 3a & Time 3b). One and three months after the completion of the intervention (Time 2) participants from both groups were sent an email with the link to the online survey including the outcome measures. Outcome measures included embitterment, work-related rumination, sleep quality, work engagement and job satisfaction. At the end of the study (3 months follow-up) participants were also asked to complete the follow-up questionnaire on participants’ subjective experience.

5.2.6. Measures

The study employed seven measures, each given at baseline, one month and three months. The measures were held online using Qualtrics Web-based survey software. Cronbach’s alphas for all measures can be viewed in Table 5.3.

**Primary study variable**

**Embitterment.** As in the previous chapter, embitterment at work was assessed using a modified workplace version of the Post-traumatic Embitterment Disorder Scale (PTED; Linden et al., 2009), which is composed of 19 items aiming to assess features of embitterment reactions in the aftermath of negative events at work.
Secondary study variables

**Work-related rumination Questionnaire** (WRPQ; Cropley et al., 2012). As in the previous chapter, work-related rumination (affective rumination and detachment) were assessed using the 10 item self-report measure.

**Work engagement.** As in the previous chapter, work engagement (Appendix M) was measured by the Utrecht Work Engagement Scale (UWES; Schaufeli et al., 2002).

**Job satisfaction.** As in the previous chapter, job satisfaction was measured using Warr’s et al., (1979) Job Satisfaction scale, which is composed by 15 items measuring different elements of intrinsic and extrinsic satisfaction in the workplace (Appendix N).

**Sleep quality.** The Insomnia Severity Index (ISI; Bastien, Vallières, & Morin, 2001) was used to measure sleep disturbances. ISI is a reliable and valid instrument used to quantify perceived sleep difficulties (Appendix O). Respondents were asked to rate on a four-point scale (0 = *none* to 4 = *very severe*) the extent to which they had faced three insomnia problems during the last month; difficulty falling asleep, difficulty staying asleep and problems waking up too early. Respondents were also asked to rate their level of satisfaction with their sleep pattern on a four-point scale (0 = *very satisfied* to 4 = *very dissatisfied*), the extent to which they believe their sleep problems have interfered (0 = *not at all interfering* to 4 = *very much interfering*) with their daily functioning (e.g. daytime fatigue, mood, ability to function at work, memory, mood etc.), and finally how noticeable (0 = *not at all noticeable* to 4 = *very much noticeable*) to others they believe their sleep problems are in terms of impairing the quality of their life? This scale has been previously used in occupational settings, with reported Cronbach’s alphas of .68 (Syrek & Antoni, 2014).
Control variables

Negative affect (NA). NA was controlled for, as in the previous chapter using the ten measures of Negative Affect from the PANAS scale (Watson et al., 1988).

Job Demands. Perceived job demands were controlled for, as in the previous chapter using the nine items from the Job Content Questionnaire (JCQ; Karasek et al., 1998).

Social support. Social support was controlled for, as in the previous chapter using the 5-item scale developed by Undén et al., (1991).

Follow-up Questionnaire on Participants’ Subjective Experience (FQPSE; Pennebaker, Colder, & Sharp, 1990). At the end of the intervention participants were presented with this eight-item questionnaire where they were asked to rate on a 7-point scale (1 = not at all to 7 = a great deal) questions related to their experience in the study. Questions asked how much participants thought about and talked about what they wrote. Questions also related to participants’ feelings after writing, the impact it had on them, how meaningful the study was and whether they would take part in such study again in the future. An open-ended question at the very end of the questionnaire asked participants to share with the researcher how the writing intervention affected them. The FQPSE was used to obtain a sense of what subjective benefits participants took from the study, but also as a manipulation check for the writing instructions (Appendix P). This questionnaire has been used at the end of prior writing studies (e.g. Pennebaker et al., 1990; Gortner et al., 2006).
Table 5.3

*Means (SD), and Cronbach’s α for all study variables*

<table>
<thead>
<tr>
<th>Study variables</th>
<th>T1</th>
<th></th>
<th>T2</th>
<th></th>
<th>T3</th>
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<tr>
<td></td>
<td>EW</td>
<td>FW</td>
<td>α</td>
<td>EW</td>
<td>FW</td>
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</tr>
<tr>
<td>EMB</td>
<td>2.22 (0.57)</td>
<td>1.99 (0.45)</td>
<td>.90(^{16})</td>
<td>1.57 (0.79)</td>
<td>1.34 (0.73)</td>
<td>.96</td>
</tr>
<tr>
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<td></td>
<td></td>
<td>.85(^{17})</td>
<td></td>
<td></td>
<td>.94</td>
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<td>AFR</td>
<td>3.82 (0.72)</td>
<td>3.30 (0.96)</td>
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<td>3.39 (0.84)</td>
<td>3.05 (0.78)</td>
<td>.93</td>
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<td>.85</td>
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<td>.88</td>
<td>3.04 (0.77)</td>
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<td>.87</td>
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<td>.90</td>
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<td>.90</td>
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<td></td>
<td>.85</td>
</tr>
<tr>
<td>JS</td>
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<td>3.85 (1.04)</td>
<td>.87</td>
<td>3.94 (1.22)</td>
<td>3.96 (1.16)</td>
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<td>.84</td>
<td>2.45 (0.39)</td>
<td>2.35 (0.45)</td>
<td>.72</td>
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<td></td>
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<td></td>
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<td>.76</td>
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<tr>
<td>JD</td>
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<td>2.91 (0.24)</td>
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<td>2.95 (0.28)</td>
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<td>Support</td>
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<td>2.70 (0.69)</td>
<td>.81</td>
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<td>.81</td>
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<tr>
<td>Sleep</td>
<td>1.65 (0.85)</td>
<td>2.01 (0.60)</td>
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<td>1.25 (0.80)</td>
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<td></td>
<td>.82</td>
<td></td>
<td></td>
<td>.86</td>
</tr>
</tbody>
</table>

\(^{16}\) Upper row under α refers to Cronbach’s α for Expressive Writing group (EW)
\(^{17}\) Lower row under α refers to Cronbach’s α for Factual Writing group (FW)
5.3. Results

5.3.1. Analytic approach

Data analyses is presented in four sections. In the first section data screening are presented. Data was screened for missing data, outliers and normality.

In the second section manipulation checks are presented. Independent sample t-tests were conducted on participants’ responses on the follow-up questionnaire, FQPSE which served as a manipulation check for the writing instructions. Further, the writing transcripts were entered into the Linguistic Inquiry Word Count (LIWC) program (Tausczik & Pennebaker, 2010) and the results of each group were compared in terms of word count, positive/negative words, and ‘cognitive mechanistic words’ (e.g. insight words ['think’, ‘know’, ‘consider’] and causal words ['because’, ‘effect’, ‘hence’]) using independent sample t-tests. This was done in order to identify if the intervention was successful in creating a difference, in terms of content between the expressive writing and factual writing group.

In the third section participants’ baseline scores on each of the dependent variables (embitterment, work-related rumination, sleep quality, work engagement, job satisfaction) were compared between the two groups (expressive writing vs. factual writing), using independent sample t-tests. This enabled the identification of significant differences between the two groups following randomisation.

In the fourth section a 2 by 2 repeated measures ANCOVA was conducted, (Expressive/Control x One month/Three months), with the baseline measures controlled as a covariate, for each of the dependent variable. This was done in order to identify, after controlling for baseline measures, whether there will be a significant difference between the expressive and factual writing group on each of the dependent variables following the intervention. Where a significant interaction effect was reported, a repeated measures
ANOVA looking at the groups separately, and a univariate ANCOVA, looking at each time point separately were conducted.

5.3.2. Data screening

No missing entries for any of the dependent variables were found, because of the stringent online entry method. There were no outliers in the data. Due to the small sample size normality was assessed by calculating z-scores for skew (Zskew) and kurtosis (Zkurtosis) by dividing the absolute skew and kurtosis values by their associated standard errors. Zscores for skew and kurtosis for all variables were <1.96 (Appendix Q), thus normality was assumed.

5.3.3. Manipulation Checks & Comparison of the output of the Linguistic Inquiry and Word Count

Participants’ responses on the follow-up questionnaire, FQPSE, served as a manipulation check for the writing instructions. Analyses of responses indicated that participants in the expressive writing condition reported that the study has been more “valuable or meaningful” for them ($M = 3.35$, $SD = 1.191$), than those in the factual writing condition ($M = 2.43$, $SD = 1.248$); $t (42) = 2.50$, $p = .016$, $r = 0.34$. No significant group differences were found on any of the remaining questions.

In order to identify if the study had been successful in creating two different intervention groups the output from the Linguistic Inquiry and Word Count (LIWC) program was also compared (Tausczik & Pennebaker, 2010). The LIWC was developed by Pennebaker, Francis and Booth (2001) in order to efficiently and effectively process text sample, including identification of emotional and cognitive processing. Participants handwritten writing samples were transcribed into electronic text files. A comparison between the two groups (factual and expressive) was conducted on three dimensions: (1) total word count, (2) percentage use of ‘positive/negative emotion’ words (e.g. love, nice, sweet/hurt, ugly, nasty)
including anxiety, anger and sadness, and (3) percentage use of ‘cognitive processes’ words which is composed of insight words such as ‘think’, ‘know’ and ‘consider’, and causal words such as ‘because’, ‘effect’ and ‘hence’ (Tausczik & Pennebaker, 2010).

Independent samples t-tests were employed to compare the groups. Equality of variance was checked for each of the variables using Levene’s test. Levene’s test was non-significant for most of the variables indicating that the assumption of homogeneity was met and thus equal variances were assumed. The assumption of homogeneity was violated for ‘word count’, ‘affect’, ‘positive emotions’, ‘cognitive processes’, ‘causal words’, indicating thus that for these variables equal variances were not assumed. The results showed no significant difference on the word count for the expressive writing group ($M = 926.52, SD = 389.56$) compared to the factual writing group ($M = 1001.71, SD = 332.84$); $t(41.83) = -0.69, p = .50$.

There was a significant difference on the percentage of ‘affect’ words used between the expressive writing group ($M = 5.99\%, SD = 1.43$) and factual writing group ($M = 2.57\%, SD = 1.07$), $t(40.51) = 9.05, p <.001$. The expressive writing group ($M = 3.02\%, SD = 0.99$) used significantly more ‘Negative emotion’ words than the factual writing group ($M = 0.50\%, SD = 0.23$), $t(42) = 11.39, p <.001$. The expressive writing group also used significantly more ‘anxiety’ words ($M = 0.56\%, SD = 0.64$) than the factual writing group ($M = 0.23\%, SD = 0.15$), $t(42) = 4.34, p <.001$. The expressive writing group ($M = 0.77\%, SD = 0.46$) used significantly more ‘anger’ words than the factual writing group ($M = 0.05\%, SD = 0.08$), $t(42) = 7.05, p <.001$. Finally, the expressive writing group ($M = 0.41\%, SD = 0.26$) used significantly more ‘sad’ words than the factual writing group ($M = 0.07\%, SD = 0.06$), $t(42) = 5.83, p <.001$.

There was also a significant difference on the percentage of ‘Cognitive Processes’ words used between the factual writing group ($M = 6.17\%, SD = 2.16$) and the expressive writing
group ($M = 16.46\%, SD = 2.62$), $t (41.67) = 14.26, p < .001$. The expressive writing group ($M = 3.98\%, SD = 1.10$) used significantly more ‘insight’ words than the factual writing group ($M = 0.72\%, SD = 0.41$), $t (42) = 12.75, p < .001$. Finally, the expressive writing group ($M = 2.31\%, SD = 0.66$) used significantly more ‘cause’ words than the factual writing group ($M = 0.72\% SD = 0.45$), $t (39.05) = 9.35, p < .001$.

In order to identify if the expressive writing intervention facilitated increased cognitive processing, evident from the increased use of ‘cognitive processes’ words including ‘insight’ and ‘cause’ words, paired sample t-tests were conducted to compare the percentage of ‘cognitive processes’ words including ‘insight’ and ‘cause’ words used by the expressive writing group on ‘day 1’ compared to ‘day 3’. There was no significant difference between ‘day 1’ percentage of ‘cognitive processes’ ($M = 16.27\%, SD = 3.13$) and ‘day 3’ ($M = 17.64, SD = 5.14$); $t (22) = -1.39, p = .18$. There was no significant difference between ‘day 1’ percentage of ‘insight’ ($M = 3.68\%, SD = 1.26$) and ‘day 3’ ($M = 4.09, SD = 1.55$); $t (22) = -1.28, p = .21$. Finally, there was no significant difference between ‘day 1’ percentage of ‘cause’ ($M = 2.21\%, SD = 0.74$) and ‘day 3’ ($M = 2.63\%, SD = 1.94$); $t (22) = -.98, p = .34$.

5.3.4. Comparison of the groups at baseline

Independent sample t-tests were conducted on the mean scores for each of the dependent variables at baseline to assess whether there was a significant difference between the groups on the dependent variables and to assess whether baseline scores should be controlled as a covariate. The homogeneity of variance assumption was tested, and Levene’s F tests were non-significant (p > .05) and thus not violated for each of the variables, suggesting that equal variances were assumed. With the exception of negative affect; $t(42) = 3.18, p = .003$, $r = 0.44$, the remaining independent sample t-tests showed no significant difference on each of the variables between the groups at baseline; embitterment $t(42) = 1.46, p = .15$,
$r = 0.22$; affective rumination $t(42) = 2.01, p = .06, r = 0.30$; detachment $t(42) = .52, p = .61, r = 0.10$; vigor $t(42) = .36, p = .72, r = 0.10$; dedication $t(42) = -.26, p = .80, r = 0.04$; absorption $t(42) = 1.24, p = .22, r = 0.19$; job satisfaction $t(42) = .39, p = .70, r = 0.06$; sleep $t(42) = -1.59, p = .12, r = 0.24$; job demands $t(42) = -.47, p = .64, r = 0.07$; social support $t(42) = .43, p = .67, r = 0.07$. The fact that no significant differences were observed between the expressive writing group and factual group at baseline, also suggests that randomisation procedure was successful.

Participants’ baseline demographics (gender & age) were also analysed. A Mann-Whitney U test revealed no significant difference on gender between expressive and factual writing group, $U = 178, z = -1.77, p = .08$. In order to examine whether there was a significant difference on participants’ age between expressive and factual writing group an independent sample t-test was conducted. The independent sample t-test revealed no significant difference between participants’ age in the expressive group ($M = 33.74, SD = 12.39$) and factual group ($M = 34.19, SD = 10.04$), $t(42) = -.13, p = .88$.

**Correlations between the variables at baseline**

Correlation analysis (see Table 5.4.) was conducted on all study variables at baseline to ascertain to which of the ANCOVA’s job demands, social support and negative affect should be added as covariates. Negative affect was correlated with affective rumination and embitterment. Job demands was correlated with dedication. Social support was correlated with affective rumination, sleep, embitterment, vigor, dedication, absorption and job satisfaction. Thus, negative affect, job demands and social support were added as covariates in further analysis for the variables they correlated with only.

Correlation analysis also indicated that workplace embitterment correlated significantly with poorer sleep quality ($r = .40, p < .01$), supporting thus hypothesis 4a.
Table 5.4  
Zero order correlations showing the relationship between the variables at baseline

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N = 44, *p < .05, **p < .01
5.3.5. Analysis of main study variables

In order to assess the effect of the intervention (both duration and group) on each of the main study variables group (Expressive, Factual) X time (One month X Three months) repeated measures ANCOVAs, controlling for baseline scores were conducted. Homogeneity of variance assumption was tested, and Levene’s F test was not violated for any of the variables suggesting that the groups had equal variances.

Primary study variable

Embitterment

Figure 5.3. shows that mean workplace embitterment for participants in the expressive writing intervention seemed to decrease from baseline ($M = 2.22, SD = 0.57$) to 1 month ($M = 1.57, SD = 0.79$) and 3 months ($M = 1.26, SD = 0.91$) and for participants in the factual writing intervention workplace embitterment seemed to decrease from baseline ($M = 2.00, SD = 0.45$) to 1 month ($M = 1.34, SD = 0.73$) and 3 months ($M = 1.12, SD = 0.74$).

Figure 5.3. Mean scores at baseline, one month and three months, for the expressive and factual writing group on embitterment measures
The results of the two by two ANCOVA, with baseline scores controlled as a covariate\textsuperscript{18}, did not show a significant main effect of time, $F(1, 41) = 1.01, p = .32$. There was not a significant main effect of group (EW & FW), $F(1, 41) = 0.01, p = .91$. There was also no group X time interaction\textsuperscript{19} $F(1, 41) = .33, p = .57$.

**Secondary study variables**

**Affective rumination**

Figure 5.4. shows that mean affective rumination for participants in the expressive writing intervention seemed to decrease from baseline ($M = 3.82, SD = 0.73$) to 1 month ($M = 3.39, SD = 0.84$) and 3 months ($M = 3.23, SD = 0.86$) and for participants in the factual writing intervention affective rumination seemed to decrease from baseline ($M = 3.30, SD = 0.96$) to 1 month ($M = 3.04, SD = 0.78$) and 3 months ($M = 2.29, SD = 0.97$).

![Affective Rumination](chart)

**Figure 5.4.** Mean scores at baseline, one month and three months, for the expressive and factual writing group on affective rumination measures

\textsuperscript{18} Controlling for other significant covariates (negative affect, job demands and social support) did not result in any significant findings.

\textsuperscript{19} As no significant interaction was found between group and time a one way repeated measures ANOVA was not conducted.
The results of the two by two ANCOVA, with baseline scores controlled as a covariate, did not show a significant main effect of time, $F(1, 41) = 1.87, p = .18$. There was not a significant main effect of group, $F(1, 41) = 0.00, p = .99$. There was also no group X time interaction $F(1, 41) = .08, p = .78$.

**Detachment**

Figure 5.5. shows that mean detachment for participants in the expressive writing intervention seemed to increase from baseline ($M = 2.77, SD = 0.93$) to 1 month ($M = 3.04, SD = 0.77$) and 3 months ($M = 3.13, SD = 0.90$) and for participants in the factual writing intervention detachment seemed to increase from baseline ($M = 2.62, SD = 0.96$) to 1 month ($M = 3.10, SD = 1.06$) and 3 months ($M = 3.19, SD = 1.03$).

![Detachment Diagram](image)

*Figure 5.5. Mean scores at baseline, one month and three months, for the expressive and factual writing group on detachment measures*
The results of the two by two ANCOVA, with baseline scores controlled as a covariate, did not show a significant main effect of time, $F (1, 41) = 0.15, p = .71$. There was not a significant main effect of group, $F (1, 41) = 0.76, p = .39$. There was also no group X time interaction $F (1, 41) = .00, p = .99$.

**Vigor**

Figure 5.6., shows that mean vigor for participants in the expressive writing intervention seemed to decrease from baseline ($M = 3.51, SD = 0.79$) to 1 month ($M = 2.99, SD = 0.97$) and 3 months ($M = 2.97, SD = 1.24$) and for participants in the factual writing intervention vigor seemed to decrease from baseline ($M = 3.41, SD = 0.96$) to 1 month ($M = 3.40, SD = .93$) and 3 months ($M = 3.32, SD = 0.99$).

![Vigor Graph](image)

*Figure 5.6. Mean scores at baseline, one month and three months, for the expressive and factual writing group on vigor measures*

The results of the two by two ANCOVA, with baseline scores controlled as a covariate, did not show a significant main effect of time, $F (1, 41) = 0.51, p = .48$. There was a significant
main effect of group, $F (1, 41) = 5.42, p = .03$. This was due to the factual writing group scoring higher in vigor than the expressive writing group. There was no significant group X time interaction $F (1, 41) = 0.12, p = .73$.

**Dedication**

Figure 5.7. shows that mean dedication for participants in the expressive writing intervention seemed to decrease from baseline ($M = 3.43, SD = 1.08$) to 1 month ($M = 3.08, SD = 1.19$) and 3 months ($M = 2.97, SD = 1.54$) and for participants in the factual writing intervention dedication seemed to increase from baseline ($M = 3.52, SD = 1.20$) to 1 month ($M = 3.72, SD = 1.33$) and decrease again in 3 months ($M = 3.55, SD = 1.15$).

![Dedication Graph](image)

*Figure 5.7. Mean scores at baseline, one month and three months, for the expressive and factual writing group on dedication measures*

The results of the two by two ANCOVA, with baseline scores controlled as a covariate, did not show a significant main effect of time, $F (1, 41) = 0.84, p = .37$. There was a significant main effect of group, $F (1, 41) = 6.30, p = .02$. This was because of factual writing group
scoring higher in dedication than the expressive writing group. There was no significant group X time interaction $F(1, 41) = 0.11, p = .75$.

**Absorption**

Figure 5.8. shows that mean absorption for participants in the expressive writing intervention seemed to decrease from baseline ($M = 3.71, SD = 0.89$) to 1 month ($M = 3.10, SD = 0.90$) and 3 months ($M = 3.28, SD = 1.11$) and for participants in the factual writing intervention absorption seemed to increase from baseline ($M = 3.36, SD = 0.95$) to 1 month ($M = 3.42, SD = .93$) and decrease again in 3 months ($M = 3.25, SD = 1.10$).

![Absorption](image)

**Figure 5.8.** Mean scores at baseline, one month and three months, for the expressive and factual writing group on absorption measures

The results of the two by two ANCOVA, with baseline scores controlled as a covariate, did not show a significant main effect of time, $F(1, 41) = 0.23, p = .64$. There was not a significant main effect of group, $F(1, 41) = 3.14, p = .08$. There was no significant group X time interaction $F(1, 41) = 3.14, p = .08$. 

200
Job Satisfaction

Figure 5.9. shows that mean job satisfaction for participants in the expressive writing intervention seemed to decrease from baseline ($M = 3.97$, $SD = 0.99$) to 1 month ($M = 3.94$, $SD = 1.22$) and 3 months ($M = 3.82$, $SD = 1.34$) and for participants in the factual writing intervention job satisfaction seemed to increase from baseline ($M = 3.85$, $SD = 1.04$) to 1 month ($M = 3.96$, $SD = 1.16$) and 3 months ($M = 4.10$, $SD = 1.30$).

Fig. 5.9. Mean scores at baseline, one month and three months, for the expressive and factual writing group on job satisfaction measures

The results of the two by two ANCOVA, with baseline scores controlled as a covariate, did not show a significant main effect of time, $F (1, 41) = 0.69, p = .41$. There was not a significant main effect of group, $F (1, 41) = 2.27, p = .14$. There was no significant group X time interaction $F (1, 41) = 1.95, p = .17$. 
Sleep Quality

Figure 5.10 shows that mean sleep quality for participants in the expressive writing intervention seemed to improve (lower levels indicating improved sleep quality) from baseline ($M = 1.65, SD = 0.85$) to 1 month ($M = 1.25, SD = 0.80$) and worsen again in 3 months ($M = 1.38, SD = 0.86$) and for participants in the factual writing intervention sleep quality seemed to improve from baseline ($M = 2.01, SD = 0.60$) to 1 month ($M = 1.51, SD = 0.73$) and worsen again in 3 months ($M = 1.69, SD = 0.68$).

The results of the two by two ANCOVA, with baseline scores controlled as a covariate, did show a significant main effect of time, $F (1, 41) = 5.86, p = .02$. This was due to participants reporting poorer sleep quality throughout the 3 months. There was no significant main effect of group, $F (1, 41) = .04, p = .85$. There was no significant group X time interaction $F (1, 41) = .48, p = .49$. 

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*Figure 5.10.* Mean scores at baseline, one month and three months, for the expressive and factual writing group on sleep quality measures
5.4. Discussion

5.4.1. Summary of findings

The purpose of this study was to assess the effect of a writing intervention on workplace embitterment and its negative consequences (work-related rumination, reduced engagement levels, job satisfaction, poor sleep quality). Results showed that participants who completed the expressive writing intervention did not show significantly lower levels of embitterment (Hypothesis 1), affective rumination (Hypothesis 2a), higher levels of detachment (Hypothesis 2b), vigor, dedication, absorption (Hypothesis 3a-3c), job satisfaction (Hypothesis 3d), either improved sleep quality (Hypothesis 4b), compared to participants who completed the factual writing, when baseline values (pre intervention) were controlled for. However, when looking at the mean scores embitterment and affective rumination levels diminished, detachment levels increased and sleep quality improved throughout the course of the intervention for both expressive and factual writing groups. Thus, findings partially support hypothesis 1, 2a, 2b and 4b.

5.4.2. Interpretation of study results

Despite the partial or lack of support of the hypothesis tested, these findings are interesting because this is the first study to empirically investigate the benefits of an expressive writing intervention for workplace embitterment. Looking at the mean scores of embitterment at baseline, one month and three months, it is evident that participants in the expressive writing group experienced a reduction in workplace embitterment, following the completion of the intervention. However, contrary to expectations, this was also the case for participants in the control group; participants in the factual writing group also experienced a reduction in embitterment, following the completion of the exercise at both one and three months. Although there was no difference between the two groups, the stability of
embitterment as indicated in study 2 as well as the fact that both groups (EW & FW) showed reduced levels of workplace embitterment, raises some points for discussion and is worth investigating further. Thus, a key question emerges: Does any type of writing benefits embittered employees?

According to Pennebaker and Chung (2011) expressive writing promotes a type of perspective shift and the ability for one to detach from their surroundings. This has been indeed empirically supported in a recent study conducted by Park, Ayduk, and Kross (2016), who provided evidence that expressive writing promotes self-distancing over time without becoming overwhelmed by negative affect in the future. This is achieved by experiencing less emotional reactivity. However, it could be argued that any type of writing could actually help individuals distract themselves and avoid focusing on their negative feelings and thoughts. On the one hand, writing about a negative experience allows the individual to actively think about the experience and acknowledge their emotions, reducing therefore the physiological and psychological work associated with inhibition. On the other hand, writing a factual description of their daily activities, food consumed, and interests can help individuals distract themselves from negative experiences (or feeling embittered in the present study) and show less emotional reactivity, in the same way as expressive writing works. However, this is something that warrants further research.

The present findings partially support previous findings that showed that expressive writing interventions can help individuals who have experienced workplace injustice manage their reactions (Barclay & Skarlicki, 2009). However, there is still inconsistency as to what is the optimal time since the negative experience (or in this case the unjust event) for the administration of the intervention. For instance, Barclay and Skarlicki (2009) in their study focused on fairness violations that had occurred in the past; the average time lapse since the unfair experience was 16 months. In the present study, there was no control over the time
lapse of the negative events that triggered embitterment. Participants were instructed to write about their deepest thoughts and feelings about work. They were given the example of writing about a stressful situation that continues to bother them, that they might have found difficult to talk about and that makes them feel upset, and they keep thinking about, without however giving participants any time constrain with regards to when the event occurred. Pennebaker and Chung (2011) supported that the expressive writing intervention might be more appropriate for addressing residual emotions and thoughts that occur in the weeks and months following the incident rather than following the initial upheaval. Future studies should investigate when the optimal time to administrate the intervention is.

A further point for discussion relates to the writing instructions given to the participants. The standard writing instructions, as put forward by Pennebaker, were used in the present study. The reason for this is because workplace embitterment was measured using the PTED scale which asks for prolonged and disabling embitterment reactions in the aftermath of negative life events without referring to unjust/unfair events per se in the instructions, thus participants were instructed to “write about your very deepest thoughts and feelings about your work. This could be a stressful experience at work that continues to bother you. For example, a situation that is difficult for you to think/talk about, makes you feel anxious or upset when you are reminded of it or that keeps coming back into your thoughts.” Although the instructions given to participants capture features of embitterment such as negative mood and ruminative thinking, yet they do not capture exclusively the key feature of embitterment; that of injustice and unfairness. Previous studies looking at the benefits of expressive writing used a modified version of the instructions depending on the context of the study. For example, studies had participants writing about their thoughts and feelings about diagnoses of diseases, major issues in their lives, or other topics rather than trauma per se (Pennebaker & Chung, 2011). Future studies could alter the instructions to fit
more an embitterment context. Specifically, participants can be instructed to write about an unfair workplace experience. Although Gortner et al.’s (2006) findings supported the mediating effect of ‘brooding’ on the benefits of expressive writing (Gortner et al., 2006), no previous studies have investigated the effect of expressive writing on work-related rumination. The present findings provide partial support that expressive writing might benefit employees’ work related rumination and more precisely affective rumination and detachment. However, as discussed in the results section there was no significant difference between expressive and factual writing group following the intervention. Moreover, as indicated in the results section findings do not support the benefits of expressive writing on work engagement nor job satisfaction. The present study is the first to explore the benefits of expressive writing on employees’ work engagement and job satisfaction level. The fact that work engagement and job satisfaction do not improve after the writing intervention is novel and suggests that embittered employees may not benefit much from expressive writing, in terms of work engagement and satisfaction. The present findings also indicate that both expressive and factual writing did significantly improve employees’ sleep quality but only one month following the intervention. However, the difference between the two groups was not significant. A previous study conducted by de Moor et al., (2002) on cancer patients again found no significant difference between expressive writing and neutral writing groups, but patients in the expressive writing group reported significantly less sleep disturbances and better sleep quality. However, the severity of the patients’ illness in de Moor et al.,’s (2002) limits the generalizability of the findings.
5.4.3. Study Limitations

This is the first RCT study on workplace embitterment and although the current study may have advanced our knowledge on how embittered employees can benefit from expressive writing, there were also some limitations that are worth mentioning. Although the final sample size used in the data analysis met the minimum number of participants (n = 44) needed to reach 95% power, yet one limitation of this study is the high sample attrition rates. There was a 49% attrition rate between inviting the 87 eligible participants to take part in the main study and the 44 participants that were included in the final analysis. This loss was most probably due to the high level of commitment required by participants. High attrition rates in RCTs are common (O’Shea, O’Connell, & Gallagher, 2016) and one study attempting to conduct RCT using the expressive writing intervention reported that the attrition rate was too high to conduct the study (Bruera, Willey, Cohen, & Palmer, 2008). Likewise, Stone (2006) also reported significant difficulties due to high levels of attrition when looking at the benefits of expressive writing on re-employment following job loss.

Another limitation of the study which might also explain the high attrition rates, relates to the confidentiality of participants’ transcripts. Although participants were clearly informed that their transcripts would be anonymised when read, still the researcher would send personalised emails to each participant either to remind them for the completion of the exercise or to send them the follow up questionnaire. Thus, the exercise was not completely anonymous in that respect. In line with theories of emotional expression, and avoidance of negative evaluation (Pennebaker, 1997), it could be argued that the emotional content of the transcripts for the expressive group may have been restricted due to fear of negative evaluation by the researcher. Looking at unfinished baseline surveys of the present study, it is evident that most participants who although started completing the survey (who therefore showed interest in taking part), when they reached to the final question where they were
asked to provide personal information (name, surname, email address), they left unanswered and incomplete. Therefore, this might also justify the high attrition rates.

A further limitation in the design of the study lies in its reliance on only self-reported questionnaire data. Relying solely on one method for collecting data and especially self-reported data, might result in common method variance explaining thus the relationship between the variables. However, the issue of common method variance should have been lessened due to the use of different measures which covered the numerous constructs tested and also scales were varied which should have minimised the chance that participants responded “by rote” (Podsakoff et al., 2003).

5.4.4. Directions for future research

As clearly stated in the introduction of this chapter, research on interventions aiming to help people suffering from embitterment are extremely limited with only one study being published on the benefits of wisdom therapy (Linden et al., 2011). The present intervention is the first to use an embittered working population. Further research is warranted given that participants in both expressive and factual writing exercises scored lower levels of workplace embitterment one month and three months after the intervention. More specifically, future research should also include a ‘no writing group’. This would give us a clearer idea as to whether any writing exercise benefits employees or not. As referenced above, further empirical work is also needed to explore whether the time lapse since the negative event has an impact on the effectiveness of expressive writing intervention. To date, no studies have investigated the optimal time for the administration of the intervention.

As findings from Chapter 3 and 4 indicate (study 1 & 2), organisational injustice in the form of lack of control and more importantly having an over-controlling supervisor can significantly predict workplace embitterment (Michailidis & Cropley, 2016). Therefore, it
could be argued that the supervisor — transgressor that triggers feelings of workplace embitterment has to change — not the employee — victim per se. Drawing back to Linden’s clinical observation that embittered individuals hold an aggressive outward-turned expectation that the world must change and not the individual, this might suggest that perhaps an organisational-centered intervention that focuses on the manager’s/ supervisor’s or the organisation’s perspective might actually be more suitable and effective in the case of workplace embitterment.

In support to this, Skarlich and Folger (1997) supported that employees are more willing to tolerate unfair distributions and procedures, which as found in their study contribute to retaliatory tendencies, when the employees’ supervisors show adequate sensitivity and concern towards them, treating them with respect and dignity. Previous studies have provided evidence for the effectiveness of training managers in fairness principles to prevent violations of fairness and/or to manage employees’ perceptions. Greenberg (2006) has provided initial support to the effectiveness of supervisory training in fostering organisational justice. Precisely he found that employees who were experiencing underpayment (a form of organisational injustice) recovered more quickly when their supervisors were trained in interactional justice than when these individuals were untrained. The training sessions followed the guidelines for training supervisors in organisational justice outlined by Skarlicki and Latham (2005). More specifically, these included role-playing exercises, reviewing case studies, describing the construct and involving workers in carefully guided group discussions.
5.4.5. Implications for the real world

The effectiveness of an expressive writing intervention in reducing workplace embitterment is still blurry as findings indicated no significant difference between factual and expressive writing. However, given that participants from both writing exercises showed reduced embitterment levels throughout the course of the intervention suggests that more research is needed in order to clarify what type of writing, if any, is more effective. Taking into consideration that workplace embitterment is triggered by organisational injustice in the form of lack of control (Michailidis & Cropley, 2016), organisations and more precisely supervisors and managers should ensure that employees’ sense of control over job performance and procedures is not supressed.

5.4.6. Conclusions

Results from this randomised control trial design showed that participants who completed the expressive writing intervention did not show significantly improvement in any of the study variables, relative to participants who completed the factual writing, when baseline values (pre intervention) were controlled for. However, when looking at the mean scores embitterment and affective rumination levels diminished, detachment levels increased and sleep quality improved throughout the course of the intervention for both expressive and factual writing groups, however the difference between the two groups was not statistically significant. The study failed to provide evidence that expressive writing can benefit work engagement and job satisfaction.
Chapter 6. General discussion and Conclusions

This thesis was set in the context of the *embitterment* literature, which has been dominated by a body of research (case studies and empirical studies) focusing on the clinical perspective of embitterment. To a lesser extent, research in this field has also examined embitterment in the occupational context, with two studies looking at embitterment in the context of work conflicts and especially bullying (Ege, 2010; Karatuna & Gök, 2014), one study looking at the association between embitterment and procedural justice (Sensky et al., 2015) and one study examining the association between embitterment, affective rumination and depression in staff of a healthcare facility attending its occupational health services (Dunn & Sensky, in press). Although embitterment is most commonly presented in the work context (Linden et al., 2007), there is a significant gap in the literature examining embitterment in the work context. The present thesis therefore aimed to address four main questions, in an attempt to unfold features and improve our understanding of workplace embitterment. This thesis aimed to address the following questions and aims:

1. *What predicts embitterment in the workplace?* Given the hallmark feature of embitterment — that it is triggered by an unjust and unfair experience — this thesis drew up on the organisational justice literature and aimed to explore the significant predictors of embitterment in the work context.

2. *What are the consequences of workplace embitterment on the employee?* By focusing on a key feature of embitterment that of ruminative thinking, this thesis also aimed to explore further the features of embittered individuals’ ruminations drawing on the literature of recovery from work. Also in the context of the Social Exchange Theory, it was explored whether workplace embitterment is associated with reduced levels of work engagement. Other variables such as job satisfaction and sleep quality were also measured.
3. *Is workplace embitterment a stable feeling, or does it diminishes or escalates over time?*

By using a longitudinal study design this thesis also aimed to assess the chronicity of workplace embitterment.

4. *How can workplace embitterment and its consequences be improved?* The final aim of this thesis was to assess the effectiveness of an employee-centered intervention to help employees who are experiencing embitterment in the workplace (by reducing levels of embitterment, work-related rumination and by improving work engagement, job satisfaction and sleep quality).

Three studies were conducted to address these questions and achieve these research aims. In study 1 (Chapter 3) a cross-sectional study was conducted to explore the predictors (procedural injustice, distributive injustice, informational injustice, interpersonal injustice and over controlling supervision) and consequences (work-related rumination) of embitterment in the work context. The mediating effect of embitterment on the association between organisational justice and affective rumination was also assessed (research aims 1 & 2). In study 2 (Chapter 4), a longitudinal study was conducted to assess the chronicity of workplace embitterment, but also to extend the findings from study 1 on the predictors of embitterment in the workplace as well as to explore further consequences of embitterment (work engagement and job satisfaction) (research aims: 1, 2, & 3). Finally, in study 3 (Chapter 5), a randomised control trial (RCT) was conducted to assess the effectiveness of an expressive writing intervention (control: factual writing) on embitterment, work-related rumination, work engagement, job satisfaction and sleep quality (research aim 4).
6.1. Summary of findings

The review of the embitterment literature as well as organisational justice and recovery from work (Chapter 2) concluded that, organisational injustice might be the precursor of workplace embitterment, given that embitterment is triggered by experiences of injustice and unfairness (Linden, 2003). Some initial investigation of the association between workplace embitterment and procedural justice has been supported by Sensky et al. (2015), however further research investigating what other forms of organisational injustice predict workplace embitterment, is warranted. Moreover, by reviewing the literature on recovery from work it emerged that employees experiencing embitterment may also engage in ruminative thinking such as affective rumination, which interferes with their ability to adequately recover from work. Therefore, the first study (Chapter 3), explored the association between workplace embitterment, perceived organisational justice (procedural injustice, distributive injustice, informational injustice, interpersonal injustice), over-controlling supervision, and work related rumination (affective rumination, problem-solving pondering, detachment). Colquitt’s (2001) four-dimensional model of organisational justice as well as over-controlling supervision (Dupré & Barling, 2006) were tested as predictors of workplace embitterment. Work related rumination was tested as an outcome of workplace embitterment. The mediating effect of workplace embitterment in the relationship between organisational justice, supervisory control and work-related rumination was also tested. Using a cross-sectional design, with a sample of working adults (N = 337), organisational injustice and over controlling supervision were found to be associated with higher levels of workplace embitterment. When applying the regression models, and after controlling for significant control variables (e.g. negative affect, job demands etc.), only over controlling supervision

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20 Limitations for each individual study have been discussed in each chapter; as such they are not reported here. Toward the end of Chapter 6 general limitations of the present thesis as a whole are discussed under ‘Research Limitations’
and perceptions of procedural injustice were significant predictors of workplace embitterment. With regards to work related rumination, findings from study 1 indicated a significant positive association between affective rumination and embitterment, problem-solving pondering and embitterment and a significant negative association between detachment and embitterment. When applying the regression models, and after controlling for significant control variables, only affective rumination and detachment were significantly predicted by embitterment. In terms of mediation analysis, workplace embitterment was found to be a significant mediator between all four concepts of organisational justice and affective rumination, as well as over controlling supervision and affective rumination.

Findings from study 1 provide support for the premise that experiences of injustice and unfairness are key in the development of workplace embitterment, but more specifically the present findings suggest that organisational injustice in the form of lack of control seems to predict workplace embitterment; both procedural injustice and over-controlling supervision share in common employees’ reduced feeling of control over their work, the processes and decisions made. Study 1 also led to significant conclusion regarding the distinctive characteristics of embittered individuals’ ruminations. Individuals experiencing embitterment engage in intrusive, pervasive, recurrent thoughts about work that are negative in affective terms being unable therefore to detach from work, post work.

Study 2 (Chapter 4) aimed to extend findings from study1 by exploring longitudinally the predictors of workplace embitterment, as well as exam further consequences of workplace embitterment and more precisely the impact embitterment has on employees’ levels of work engagement and job satisfaction. By reviewing the available literature on embitterment (Chapter 2) a lack of empirical evidence regarding the chronicity of workplace embitterment was identified. Therefore, study 2 also aimed to explore whether embitterment is a stable phenomenon, or whether it diminishes or escalates over time. Longitudinal data was collected
at two time points (6 months apart), and was analysed using regression models. Results showed that workplace embitterment remains fairly stable over a period of 6-months, at least within that sample of workers. With regards to the predictors of embitterment, findings indicated that perceptions of distributive injustice and informational injustice as well as over controlling supervision in Time 1 significantly predicted workplace embitterment six months later. Interestingly, only the relationship between supervisory-control and embitterment remained significant after controlling for baseline embitterment. This finding is in line with study 1 which again suggested that over-controlling supervision significantly predicts embitterment, yet the results are stronger due to the longitudinal nature. Results from study 2 also suggested that workplace embitterment leads to reduced levels of work engagement (vigor, dedication) and job satisfaction. The findings from this chapter built on the previous chapter and extended our understanding on the features of embitterment and its consequences.

In Chapter 4, the stability of embitterment as indicated by the 6 month longitudinal study is discussed, which suggested the need for an effective intervention that will improve workplace embitterment and its outcomes (i.e. work related rumination, reduced work engagement and job satisfaction). Therefore, in study 3 (Chapter 5), an expressive writing intervention was assessed for its effect on workplace embitterment, work-related rumination, work engagement, job satisfaction and sleep quality using a randomized control trial. Participants (N = 65) were randomized into either the intervention (expressive writing; N = 33) or control (factual writing; N = 32) groups and were assessed pre-intervention (baseline) and at one and three months follow up. Results showed that participants who completed the expressive writing intervention did not show significantly lower levels of embitterment, affective rumination, higher levels of detachment, vigor, dedication, absorption, job satisfaction, either improved sleep quality, compared to participants who completed the factual writing, when baseline values (pre intervention) were controlled for.
However, the mean scores of each variable indicated that embitterment and affective rumination levels diminished, detachment levels increased and sleep quality improved throughout the course of the intervention for both expressive and factual writing groups. This warrants further research and investigation, as study 2 provided support for the stability of embitterment and as findings from study 3 indicate embitterment diminished after a writing exercise irrespective of emotional disclosure taking place (expressive writing) or not (factual writing). The study failed to provide evidence that expressive writing can benefit work engagement and job satisfaction. A summary of the key findings for all studies is also presented in Table 6.1.
Table 6.1.

*Summary of findings for all studies*

<table>
<thead>
<tr>
<th>Study &amp; Aims</th>
<th>Key findings</th>
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<td><strong>Study 1 (cross-sectional)</strong></td>
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| Aim: Investigate the association between embitterment, organisational justice, over-controlling supervision and work-related rumination. | • Over controlling supervision and perceptions of procedural injustice were significant predictors of workplace embitterment.  
• Affective rumination and detachment were significantly predicted by embitterment. |
| **Study 2 (longitudinal)** | |
| Aims:  
1. Investigate the chronicity of workplace embitterment.  
2. Test longitudinally predictors of workplace embitterment.  
3. Investigate whether embitterment in the workplace leads to reduced levels of self-reported work engagement, as well as reduced levels of job satisfaction. | • Embitterment remains stable over a period of 6-months  
• Perceptions of distributive injustice and informational injustice as well as over controlling supervision significantly predicted workplace embitterment.  
• Workplace embitterment predicted reduced levels of vigor, dedication and job satisfaction.  
• Only the relationship between supervisory-control and embitterment remained significant after controlling for baseline embitterment. |
| **Study 3 (intervention)** | |
| Aim: Investigate if the completion of an expressive writing task (experimental group), compared to completion of a factual writing task (control group), will significantly reduce levels of workplace embitterment, work-related rumination, and improve work-engagement, job satisfaction and sleep quality. | • Participants who completed the expressive writing intervention did not show significantly lower levels of embitterment, affective rumination, higher levels of detachment, vigor, dedication, absorption, job satisfaction, either improved sleep quality, compared to participants who completed the factual writing.  
• Mean scores of embitterment and affective rumination levels diminished, detachment levels increased and sleep quality improved throughout the course of the intervention for both expressive and factual writing groups. |
6.2. Contribution of research

Theoretical and conceptual contribution. Notwithstanding the general limitations inherent in the present studies (discussed under ‘Research limitations’, below), the studies conducted and presented in this thesis are novel in the field of occupational health psychology and have furthered our understanding on workplace embitterment. As discussed in Chapter 2, workplace embitterment is a common experience for many employees. This indeed has been supported by Sensky (2010), and in study 1 where more than half of the sample scored above the suggested cut-off score of 1.6 on the embitterment scale. Despite the prevalence of embitterment in the workplace, researchers have surprisingly overlooked this phenomenon with limited studies being published on this area of research. Overall, thus, the findings from the studies reported in this thesis contribute to the theoretical and conceptual understanding of embitterment in the work context. Detailed theoretical and conceptual contributions are discussed below.

Predictors and antecedents of workplace embitterment were identified in Chapter 3 and 4, adding therefore to our understanding as to what exactly triggers workplace embitterment. Although Linden (2003) defined embitterment as an emotion that arises in the aftermath of experienced injustice and unfairness, this definition is still quite broad and vague. What forms of injustice do actually lead to embitterment, especially in the workplace? Sensky et al., (2015) provided some initial insight here by showing that staff who are embittered perceive their organisation as unsupportive, with workers showing low levels of procedural justice. Study 1 and 2 in the present thesis have built on Sensky’s et al., (2015) findings by suggesting that perceptions of organisational injustice and more precisely justice in the form of lack of control can significantly predict workplace embitterment. This finding not only theoretically adds on to the embitterment literature, but most importantly gives a clearer picture as to what workplace embitterment is. Perhaps when defining embitterment in
the work context it should be also specified that injustice in the form of lack of control in the way one can perform their work, can generate feelings of embitterment. Interestingly this has been supported both cross-sectional (study 1) and longitudinally (study 2).

Findings from the present thesis have also enhanced our understanding regarding the features of workplace embitterment. While Linden (2003) has stated some key features of embitterment (e.g., negative mood, restlessness since the event, avoidance of places and people that elicited memories of the event, general resignation since the event with no meaning in further effort), these features/symptoms were identified in a clinical context. The present studies were conducted with working populations in the work context and the findings suggest that individuals who experience embitterment in the workplace may show other features that previous studies on embitterment have not revealed. More specifically, study 1 and study 2 have suggested that workplace embitterment is associated with work-related rumination, reduced levels of work engagement and job satisfaction. These findings might be considered in the future for diagnosing embitterment in the workplace (discussed under ‘Future research’, below).

The feature of ruminative thinking in embitterment has been previously supported by Linden (2003), however up until now the exact features of ruminative thinking were unknown. Study 1, has explicitly explored what type of ruminative thinking embittered employees engage in, adding therefore theoretically to the literature of workplace embitterment. The findings revealed that, individuals experiencing embitterment, engage in intrusive, pervasive, recurrent thoughts about work that are negative in affective terms being unable therefore to detach from work, post work. However, the fact that levels of workplace embitterment correlated positively with problem-solving pondering suggests that individuals experiencing embitterment might actually ponder about work-related problems in order to see how they can be improved. These distinctive characteristics of employees experiencing embitterment might suggest that it is not
necessarily that ruminating is a problem, but rather whether individuals experiencing embitterment can actually ruminate in a more problem-solving focused way so that the emotional response is not evoked and affective rumination is restricted.

While it was beyond the scope of this thesis to explore the relationship between work-related rumination and organisational justice, mediation models from study 1 indicated that organisation injustice is related to affective rumination, and that this relationship is mediated by workplace embitterment. This finding builds on the work-related rumination literature and Cropley’s and Zijlstra’s (2011) argument that problematic work situations can foster rumination and interfere with employees’ ability to adequately recover from work; employees might engage in affective ruminative thinking when experiencing injustice in their workplace and feelings of embitterment are fostered.

Findings from study 2 also add on to the work engagement literature and more specifically the Utrecht Work Engagement Scale (UWES; Schaufeli & Bakker, 2003). In study 2, it was found that embitterment significantly predicted only vigor and dedication at work; embitterment was not a significant predictor of absorption. Apparently, other studies (e.g. Langelaan et al., 2006; Llorens et al., 2007) have also supported that absorption is less frequently experienced in comparison to vigor and dedication which are considered as the two core dimensions of work engagement. This finding raises the question as to whether the dimension of absorption should be included in the UWES-scale, as previously suggested by other scholars such as González-Roma, Schaufeli, Bakker, and Lloret (2006).

Theoretically, this thesis also adds to the expressive writing literature. Up until now evidence was only provided for the benefits of expressive writing. Study 3 however provides possible support for the benefits of both expressive and factual writing on workplace embitterment, sleep quality, affective rumination and detachment (discussed under ‘Summary of findings’, above). Further empirical work is needed to explore this further.
Practical contributions. Practically, this thesis partially supports the use of expressive wiring intervention as being useful in aiding employees who experience workplace embitterment. The expressive writing intervention using a randomised control trial design assessed in Chapter 5, suggests that a cost effective and easy to administrate intervention could possibly benefit embittered employees. However, the lack of significant difference between the expressive and factual writing groups prevents certain conclusions as to whether expressive writing is the answer to workplace embitterment. Still, the insignificant difference between expressive and factual writing may not be that important as the key was to reduce embitterment – a construct that appears quite stable and one that is unlikely to change by itself (Chapter 4). Importantly, findings from study 1 and study 2 also highlight possible practical contributions to the embitterment literature. Findings from the first two studies revealed that organisational injustice in the form of lack of control and more importantly having an over-controlling supervisor can significantly predict workplace embitterment. Therefore, it could be argued that the supervisor who actually triggers feelings of workplace embitterment has to change — not the employee per se. This might suggest that perhaps an organisational-centered intervention that focuses on the manager’s/ supervisor’s or the organisation’s perspective might be more suitable and effective in the case of workplace embitterment. Yet, further empirical research is needed to explore this further.

Methodological contributions. In terms of methodological contributions, this thesis and especially the intervention in study 3 significantly adds to the work and organisational health psychology interventions literature. In a recent review on the use of randomized control trials in work and organisational health psychology interventions (O’Shea et al., 2016), it was highlighted that the adoption of RCTs has been relatively scarce in comparison to other areas of psychology. This raises the need for rigorous randomized design interventions for workers’ well-being that can be comparable with other interventions in
health and medicine. Study 3 has adapted an RCT following a set of evidence-based guidelines for reporting RCTs. Some of the core methodological qualities that have been used in the expressive writing intervention (study 3) and that have contributed to the validity and rigor of the intervention design include the allocation of participants to intervention (expressive writing) and control groups (factual writing) in such a way that every participant had an equal probability of assignment to any of the groups, reducing thus confounding and a number of biases. Moreover, the present intervention has adapted a more robust design than previous expressing writing interventions as three time points (baseline, 1st follow-up, 2nd follow-up) were used; outcome measures from two follow-ups were collected as opposed to previous studies where only one follow-up is conducted (e.g. Barclay & Skarlicki, 2009; Kirk et al., 2011). Using two follow-ups (one and three months after the completion of the intervention) allowed for the assessment of longer term benefits of the expressive writing intervention. Regardless its successful or meaningful outcome, RCT is a valid and rigorous intervention design and according to Moher, Schulz, and Altman (2001) it is the most effective method for testing intervention effectiveness.

6.3. Research limitations

This thesis, as in almost all research, has some limitations. One of the most significant limitations of this thesis concerns the use of self-reported measures. In all three empirical studies, all the main constructs in the thesis (embitterment, work-related rumination, organisational justice, over-controlling supervision, work engagement, job satisfaction) were assessed via self-report questionnaires which were completed by participants online. The use of self-reported measures can subsequently lead to some degree to ‘common method variance’, meaning that the potential source of variance has more to do with the measurement method utilized, rather than the actual constructs being investigated (Podsakoff et al., 2003).
In all three studies, measures were taken as an attempt to control or at least minimize common method variance as well as reducing the likelihood of participants responding ‘by rote’, as different scale points and verbal labels for the various measures were used (Tourangeau et al., 2000).

Another limitation that stems from the use of self-reported measures is that of social desirability bias especially for the answers provided by the employees on items relating to their supervisor and workplace. Although participants were clearly informed that their answers would not be shared with their employers/supervisors and only the researchers’ conducting the study would have access to their data, still employees might have either under-reported or over-reported injustice behaviours of their employers/supervisors as an attempt to either understate or exaggerate these behaviours, respectively. The limitations arising from the use of self-reported measures could be reduced in future studies by utilising other objective methods along with self-report data. For example, pairing self-report data with more objective measures on embitterment (e.g. clinical interviews), work-related rumination (e.g. HRV, BP), work engagement (collecting supervisory ratings of employees’ work engagement levels), could be useful. However, a downside of using other more sophisticated methods lies in their cost and complexity and subsequently a higher burden would be placed on the working participants.

A further limitation that relates mostly to study 2 and study 3 is that of high sample attrition rates. In study 2, only 169 participants out of 352 (Time 1) completed both time 1 and time 2 surveys (response rate = 48 %). High attrition rates in longitudinal studies are a common problem; Visser (1982) reported 30-50 dropout rates and higher. In study 3, 65 individuals were randomly allocated in the two groups, but only 44 were used in the main analysis. This loss was perhaps due to the high level of commitment needed from each participant. Conducting research on ‘real people’ and especially working populations outside
of the laboratory setting, comes along with inherent limitations. Because of the high pace with which employees have to work, the workload and the limited leisure time they have once finishing work, makes it really hard and even impossible for some people to commit in research. Nowhere was this more evident than in study 3 (RCT) where several participants who initially expressed interest in taking part in the expressive writing intervention, after reading the information sheet and realised the level of commitment involved in the study decided to opt out because of ‘being too busy at work’. Although participants in both studies were given the chance to win Amazon vouchers if completing all stages of the studies, still this was not enough in order to prevent high attrition rates and as an incentive for employees to participate. The difficulties in recruiting ‘real people’ and not university students when conducting and evaluating research should be highly considered, as these studies can point the way for future research which hopefully can then be conducted with more rigor.

These limitations are offset by key strengths of this thesis. Firstly, the sample in each study was comprised of different groups of working adults representing a broad cross-section of industry sectors. Furthermore, the novel findings of this thesis advance our knowledge and understanding of the feeling of embitterment in the workplace and highlight some interesting future directions for research in this area, addressed below.

6.4. Future research

A possible avenue for future research is to examine further the causal relationship between workplace embitterment, organisational justice, over-controlling supervision, work-related rumination and work engagement. The longitudinal study in Chapter 4 had only two time points which did not enable any time series analysis to assess a possible cyclical relationship between the variables. Although findings from study 1 and study 2 as well as from Sensky et al., (2015) suggest that perceptions of organisational injustice can
significantly predict workplace embitterment, it might be that feeling embittered in the workplace also makes individuals perceive their organisation as being less fair and just. Moreover, a longitudinal study design looking at the direction of the causal relationship between work-related rumination and embitterment is needed. Dunn and Sensky (in press) support that engaging in affective rumination can contribute to chronic embitterment, whereas in study 1 (Michailidis & Cropley, 2016) it is supported that embitterment can contribute to inadequate recovery from work due to engagement in affective rumination. Therefore, developing longitudinal designs with more measure points in them may enable the assessment of a cyclical model. Future longitudinal studies should also aim for larger sample sizes. In study 2, limited sample size due to high attrition rates made it difficult to use structural equation modelling (SEM) for the data analysis. Longitudinal data and causal relationships are best analysed using SEM as it produces path (structural) models, describing relations of dependency, usually accepted to be in some sense causal, between the variables (McDonald & Ho, 2002). It would also be useful to conduct diary studies to capture changes of embitterment over short-time intervals and to assess a within person change, rather than just aggregate ‘mean’ group change. A key advantage of conducting a diary study in the workplace embitterment context is that it reduces retrospective bias (Reis & Gable, 2000), which is known to threaten the validity of more general cross-sectional surveys. For example, the studies in the present thesis asked participants to think of negative work related events without specifying the time lapse since the event had happened. As discussed in Chapter 5 (study 3), the time lapse since the negative event might have an impact on the effectiveness of interventions, as the memory and emotions related to that event might fade with time. Diary studies can overcome this problem as data are collected close to the event. Yet, the effectiveness of diary studies in controlling retrospective bias depends on the time span the diary assessment tries to cover.
As already mentioned one of the most significant limitations of this thesis is the use of self-reported data. Future research should include more objective measures. For example, it would be useful to pair self-report data with more objective measures on embitterment (e.g. clinical interviews). Qualitative research, by conducting semi—structured interviews with embittered employees, could be used to gain a much deeper understanding of underlying reasons that place the individual in this negative state (embitterment), as well as uncover other features of it. Work-related rumination could also be measured with other indicators such as heart rate (HR) and blood pressure (BP). Laboratory studies have indeed supported that rumination is associated with higher systolic and diastolic blood pressure as well as higher heart rate (Ottaviani, Shapiro, & Fitzgerald, 2011; Cropley et al., 2017). With regards to work engagement, it would be useful for future studies to collect supervisory ratings of employees’ work engagement levels. However, employing such measures makes the data collection process much complicated both for the participants as well as for the researchers.

As mentioned in study 2 (Chapter 4) workplace embitterment can lead to retaliation behaviours directed to the organisation by showing reduced levels of work engagement. Retaliation is motivated primarily by the need ‘to make the wrongdoer pay’ and is triggered by the individuals’ effort to get even with the organisation and its agents for perceived injustice (Skarlicki & Folger, 1997). Future studies could investigate further retaliation behaviours such as counterproductive behavior and antisocial behavior that embittered employees might engage in. Also, it would be interesting to investigate embittered employees’ engagement in deviance behaviours, given the association between organisational injustice and deviance behaviours (Bennet & Robinson, 2000).

Considering alternative strategies to reduce workplace embitterment and its consequences, it would be interesting to develop interventions designed to train managers and supervisors in organisational justice principles. As already mentioned in Chapter 5 there has
been an initial effort in investigating the benefits of training supervisors to treat their subordinates in an interactionally fair manner (Greenberg, 2006). Indeed, evidence not only supports the effectiveness of organisational justice training but also the persistence of improvements 6 months after the training was conducted. Future studies could also investigate the benefits of mindfulness interventions for embittered employees. The effectiveness of mindfulness-based cognitive therapy, with both internet-based and face-to-face delivered formats, in reducing rumination has been well documented (e.g. Querstret, Cropley, & Fife-Schaw, 2017), as mindfulness is associated with increased levels of awareness. Individuals who practice mindfulness become more aware of their thoughts and emotions and this increased awareness is claimed to provide individuals with a greater sense of control over thinking, as it enables them to observe their thoughts and emotions without engaging with them (Williams & Penman, 2011). Therefore, it would seem appropriate to investigate whether mindfulness could actually benefit employees who experience embitterment.

Acceptance and commitment therapy could also be suited for individuals experiencing embitterment. It has been successfully applied to the treatment of depression, anxiety and PTSD (Forman, Herbert, Moitra, Yeomans, & Geller, 2007; Orsillo & Batten, 2005). According to Hayes, Strosahl, and Wilson, (1999) this type of therapy focuses mostly on increasing the individual’s ability to accept things as they are, make and keep commitments for behavior change and at improving components in their life that are deemed to be important for them. With regards to embitterment treatment, acceptance and commitment therapy could aim at helping the individual to accept the cause of the embitterment without seeking revenge and also encourage them to identify valued directions and goals in their lives.
6.5. Overall conclusions

On the whole, the present thesis has added on the incipient body of research of an understudied topic in occupational health psychology; that of workplace embitterment. The results from this thesis suggests that breaches in organisational justice and more precisely organisational injustice in the form of lack of control in the way an employee performs their work, can trigger feelings of workplace embitterment. Further features of workplace embitterment were also identified. Employees who experience embitterment in the workplace show a reduced ability to adequately recover from work, as they engage in increased affective rumination and reduced detachment. Moreover, workplace embitterment was found to predict reduced levels of work engagement, job satisfaction and poor sleep quality. By utilising a longitudinal study design it was found that workplace embitterment is relatively stable over a period of six months if people stay in the same job. The stability of workplace embitterment engendered the need for an intervention designed to ameliorate embitterment and its consequences. Thus, an expressive writing intervention using a randomized control trial was conducted on embittered employees, and despite its rigorous design, the effectiveness of this intervention was only partially supported by the findings. The unfolding of further features of workplace embitterment and the development of interventions to improve this feeling seems a worthwhile future endeavor.
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Appendix A. Published manuscript for Study 1

Exploring predictors and consequences of embitterment in the workplace

Evie Michailidis and Mark Cropley
School of Psychology, University of Surrey, Guildford, UK

ABSTRACT
Research on the feeling of embitterment at work is still in its infancy. The present study investigated the predictors and consequences of the feeling of embitterment at work. It was hypothesised that organisational injustice as well as over-controlling supervision would predict embitterment at work and that embitterment would be associated with work-related rumination. Three hundred and thirty-seven employees completed an online survey. Regression analysis revealed that procedural injustice and over-controlling supervision were significant predictors of embitterment and that embitterment contributed significantly to the prediction of increased affective rumination and reduction in detachment. Mediation analysis indicated that embitterment at work was a significant mechanism through which organisational injustice and over-controlling supervision exerted their effect on affective rumination, which is indicative of insufficient recovery from work. Findings suggest that breaches in organisational justice can generate feelings of embitterment at work, which in turn can interfere with employees’ ability to adequately recover from work.

Practitioner Summary: The purpose of this study was to investigate predictors and consequences of embitterment in the workplace using an online questionnaire. Findings suggest that perceived unfairness, because of structural and organisational aspects, predicts feelings of embitterment and that feeling embittered at work can prevent employees from adequately recovering from work.

Introduction
Post-traumatic embitterment disorder (PTED) was initially defined by Linden (2003) as the mental reaction to critical, yet common but not everyday, negative life events that are mainly experienced as unjust, personally humiliating or hurtful and can result in persistent psychological stress. Embittered individuals feel that they have been unjustly and unfairly treated; they show a desire for revenge against the person responsible for their negative state, but at the same time, they reject help from others (Linden 2003). As noted by Sensky (2010), using the term PTED however might imply that the features of embitterment result from a single incident. Sensky (2010) thus described the condition as chronic embitterment, which we use in the present study. Any life event can evoke feelings of embitterment; however, in one study, Linden et al. (2007) revealed that such critical life events were, in most cases, work-related (73%). However, little is known about the feeling of embitterment in occupational settings and the main objective of this study was to examine predictors and consequences of chronic embitterment within the workplace.

To date, only few studies have investigated the emotion of embitterment in the workplace. Karatuna and Gök (2014) revealed that workplace bullying was highly correlated with embitterment reactions. Interestingly, the core feature of PTED; that is, feelings of injustice, showed the highest mean scores among participants. Given that workplace bullying is regarded as a form of injustice, due to the fact that acts construed as bullying are appraised as unjust, disrespectful and humiliating (Namie 2007), this finding is in line with Sensky’s (2010) and Muschalla and Linden’s (2011) argument that the experience of embitterment arises due to the perceived failure of organisational justice. Sensky et al. (2015) have indeed provided some initial support to this position, as they found that employees who experience embitterment in their workplace report experiencing low levels of procedural justice. However, Sensky et al. (2015) focused only on one aspect of organisational justice.

In the present study, Colquitt’s four-component model of organisational justice was applied: distributive justice (Leventhal 1976) is communicated as the subjective perception of how fairly outcomes such as rewards have been distributed; procedural justice is communicated as how fairly the organisational systems/procedures have been used to allocate these outcomes (Leventhal 1980; Thibaut...
and Walker (1975); interpersonal justice concerns how sensitively and fairly the information has been communicated to the employees (Greenberg 1993); and informational justice is communicated as how explanatory the information given to employees was with regard to why a specific outcome happened (Greenberg 1993).

Over a period of time, perceptions of un fairness in the workplace may be considered a source of stress and contribute to chronic embitterment. Given that embitterment is triggered by events that are experienced as unjust (Linden 2003), it seems plausible to consider perceived organisational injustice as a predictor of chronic embitterment in the workplace.

Hypothesis 1a: Participants reporting lower levels of perceived procedural justice will report higher levels of embitterment.

Hypothesis 1b: Participants reporting lower levels of perceived distributive justice will report higher levels of embitterment.

Hypothesis 1c: Participants reporting lower levels of perceived interpersonal justice will report higher levels of embitterment.

Hypothesis 1d: Participants reporting lower levels of perceived informational justice will report higher levels of embitterment.

Scholars such as Dupre and Barling (2006) have considered over-controlling supervision as a form of organisational injustice. When subordinates perceive that their work performance is highly controlled by their supervisors, they perceive this is a lack of respect, dignity and courtesy, and thus they are likely to experience organisational injustice (Tyler and Bies 1990). Thus, the present study further examined whether chronic embitterment in the workplace can be predicted by perceptions of over-controlling supervision. However, in the present study, we do not treat over-controlling supervision as a component of organisational injustice but as two discrete variables due to the fact that over-controlling supervision refers precisely to the relationship between two parties (i.e., employee and supervisor) based on levels of control.

Hypothesis 1e: Participants reporting high levels of over-controlling supervision will report higher levels of embitterment.

With regard to what might be the consequences of chronic embitterment in the workplace, the inability to adequately recover from work was also examined. Work recovery is best understood as the process that revitalises one's energy resources (Zijlstra, Cropley, and Rydstedt 2014). Inability to do so might lead to crucial consequences both on the individual's job performance and well-being. For instance, Rook and Zijlstra (2006) revealed that insufficient recovery can result in fatigue. Insufficient recovery could further lead to strain and in the long term, it might negatively impact health and consequently increase employees' sickness absence (Meijman and Mulder 1998).

The mechanism facilitating recovery is conceptualised within the context of the Job Demands–Resources–Recovery model (JDR–R; Kinnunen et al. 2011) – which is an extension of the original Job Demands Resources model (JD–R; Demerouti et al. 2001) – by considering recovery as a significant mediation mechanism that underlies the relationship between work characteristics and well-being. Kinnunen et al.'s (2011) JD–R–R model postulates that job demands (e.g., work pressure) inhibit recovery leading therefore to impaired health, whereas job resources (e.g., job autonomy) facilitate recovery and help maintain positive work-related attitudes such as work engagement.

In order to be able to recover after work, people have to physically and cognitively switch-off from work. However, one of the main factors that prevents people from 'unwinding' after work is their inability to psychologically detach and disengage from work at the end of their working day (Erez, Eden, and Lapidot 1998). Employees do not fully detach from their work unless they stop thinking of work-related issues in non-working time (Rook and Zijlstra 2006).

Prolonged physiological arousal and delayed recovery from stress have been linked to individuals' unintentional persistent thoughts, termed as rumination (Roger and Jamieson 1988). Work-related rumination refers to the repetitive thinking about work-related issues when the individual actually abstains from demands necessitating these thoughts and has thus been conceptualised as a 'proxy of insufficient recovery' (Cropley and Millward Purvis 2003, 197).

Recently, Cropley and Zijlstra (2011) supported a three-factor conceptualisation of work-related rumination and labelled these as affective rumination, problem-solving pondering and detachment. Affective rumination is described as a cognitive state characterised by the appearance of intrusive, pervasive, recurrent thoughts about work, resulting in a negative emotional response. By ruminating, psychophysiological arousal remains high, people remain emotionally and cognitively 'switched on' during non-work time and thus the recovery process remains incomplete (Cropley and Zijlstra 2011). Affective rumination is a form of intrusive thoughts about work, which are negative in affective terms (Pravettoni et al. 2007). Interestingly, Linden et al. (2007) supported that having intrusive thoughts is a dominant characteristic of embittered individuals, as in the case of embitterment, individuals are frequently reminded of the insult and visually recollect the situation in which the insult was uttered. Thus, it seems plausible that chronic embitterment, although conceptually distinct, would nonetheless be related to affective rumination.
Employees might ruminate with a problem-solving focus, either in order to find the best solution to the encountered work-related problem or re-evaluate their performance as an attempt to improve it. In this respect, 'problem-solving pondering' can be regarded as less damaging and even beneficial for the recovery process, as it does not involve psychological and physiological arousal (Cropley and Zijlstra 2011). Although there is a clear conceptual differentiation between affective rumination and problem-solving pondering – a reciprocal association between the two has been previously supported (Cropley and Zijlstra 2011; Querstret and Cropley 2012). This makes intuitive sense, as high affective ruminators may engage in problem-solving strategies in order to find ways to resolve the cause of their stress, while affective rumination maybe triggered in those who are typically more problem-solving focused but get distressed by a frustrating problem they find difficult to resolve. With regard to embittered individuals, it is possible that their post-work thoughts would not be characterised as having a problem-solving focus. According to Linden (2003), individuals who experience embitterment tend to feel hopeless and find no meaning in putting further effort into solving their 'problem' which in their case, the problem would be the perceived unjust, insulting event/person that got them into this negative state. Therefore, it seems plausible that embitterment would not be positively associated with problem-solving pondering, but would be negatively associated with this form of post-work thinking.

Finally, 'detachment' from work refers to an 'individual's sense of being away from the work situation' (Etzion, Eden, and Lapidot 1998, 579). Not only should employees abstain from work-related activities but most crucially, detachment implies that an employee completely disengages mentally from work. As embittered individuals recall the insulting event over and over again (Linden 2003, 197), it is logical that embittered individuals would not detach from work and thus embitterment would show a negative correlation with detachment.

Hypothesis 2a: Participants reporting high levels of embitterment will report high levels of affective rumination.

Hypothesis 2b: Participants reporting high levels of embitterment will report low levels of problem-solving pondering.

Hypothesis 2c: Participants reporting high levels of embitterment will report low levels of detachment.

According to Cropley and Zijlstra (2011), a problematic work situation can foster rumination and impact the unwinding process. For instance, when employees perceive injustice at their work, this makes the work environment problematic and possibly employees would start to ruminate about these problematic issues and thus their recovery process would be impaired. It seems highly plausible therefore that organisational injustice, chronic embitterment and work-related rumination are related. To our knowledge, no previous study has tested the mediating effect of embitterment on the relationship between organisational injustice and work-related rumination. Organisational injustice is undoubtedly a problematic issue of the work environment, which could evoke feelings of embitterment. In turn, the feeling of embitterment impairs the recovery process, as embittered workers are likely to ruminate and fail to adequately psychologically detach from work.

Hypothesis 3: Embitterment will mediate the relationship between significant organisational injustice predictors of embitterment and affective rumination.

Method

Three hundred and thirty-seven (N = 337) employees (Males = 26.1%, Females = 73.9%) took part in the study. The age range of participants was between 20–70 years (M = 36.87, SD = 12.37). The majority of participants (78.6%) worked full-time. A hundred and sixty-two participants (48.1%) worked on average 31–40 h per week, 100 participants (29.7%) worked 41–50 h per week, 30 participants (8.9%) worked 21–30 h per week, 24 participants (7.1%) worked 51–60 h per week, 16 participants (4.7%) worked 10–20 h per week and 5 participants (1.5%) worked more than 61 h per week. A convenience sampling strategy was employed as participants were recruited through the researchers' professional networks. Individuals who chose to participate were encouraged to forward the link to other colleagues who were over the age of 18 and working. Details of the study and a live link to the survey were also posted on professional networking sites and information about the study was also distributed via human resource managers of organisations the researchers had contract with. Human resource managers were asked to circulate an information sheet describing briefly the nature and aim of the study to all their employees. Those who were interested in taking part were then emailed a link to the online survey. More than half of the participants (75%) scored over the cut-off score of 1.6 on the embitterment scale, which indicates that the majority of the participants were embittered (Linden et al. 2009).

Perceptions of organisational justice were assessed using the four dimensions (distributive, procedural, interpersonal, and informational) of the Organisational Justice Perceptions measure (OJP; Colquitt 2001). Procedural justice was assessed with seven items referring to procedures used to arrive at the employees’ outcome (e.g. pay, promotions, etc.) (e.g. Have you been able to express your views
and feelings during those procedures?). Distributive justice, referring in general to the employees’ outcomes, was measured using four items (e.g., “Does your outcome for example pay, promotions, etc., reflect the effort you have put into your work?”). Interpersonal justice was measured with four items in reference to the individual who enacted the procedure, in this case, the employees’ supervisor (e.g., “Has he/she treated you with respect?”). Finally, informational justice, in reference to the individual who enacted the procedure, was measured with five items (e.g., “Has he/she explained the procedures thoroughly?”). Respondents were asked to rate each statement on a five-point scale (1 = to a small extent to 5 = to a large extent). Cronbach’s alpha values for the present study were α = 0.87 (procedural), α = 0.93 (distributive), α = 0.87 (interpersonal) and α = 0.91 (informational).

Supervisory control was assessed using the Supervisory Control over Work Performance scale (SCOWP; Dupre and Barling 2006). This scale is composed of eight items and aims at assessing employees’ perceptions of supervisory control over employees’ work performance (e.g., “My supervisor does not give me the freedom to do things that I want to do in my work”). Respondents were asked to rate each statement on a seven-point scale (1 = strongly disagree to 7 = strongly agree). Cronbach’s alpha value for the present study was α = 0.86.

Embrittlement at work was assessed using the PTED Scale (Linden et al. 2009), which is composed of 19 items aiming to assess features of embrittlement reactions in the aftermath of negative events. As the present study explored embrittlement in the workplace, additional instructions asked respondents to “please focus only on your experience at work” (Sensky 2010). Each question was prompted with the words “I have experienced one or more distressing events at work …” and was then followed by 19 individual statements such as “…that causes me to be extremely upset when I am reminded of it.” Participants were asked to indicate for each item on a five-point scale to what degree the statement applies to them (0 = not at all true to 4 = extremely true). Cronbach’s alpha value for the present study was α = 0.96.

Work-related rumination was assessed using the Work-related Rumination Questionnaire (WRRQ; Ciopeley et al. 2012). The WRRQ is a 15-item self-report measure designed to measure the three subscales of ruminative thinking: affective rumination, problem-solving pondering and detachment. Respondents are instructed to rate on a five-point scale (1 = very seldom or never to 5 = very often or always) the relative frequency they engage in each of the three post-work forms of thinking. The affective rumination subscale includes five items such as “Are you irritated by work issues when not at work?” included in the problem-solving pondering subscale are five items such as “I find solutions to work-related problems in my free time.” An item representative to the detachment subscale is “Do you feel unable to switch off from work?” This scale has been used in several studies (e.g., Querstreet and Ciopeley 2012), and it has good reliability and validity (Ciopeley et al. 2012; Syrek et al. 2016). Cronbach’s alpha values for the present study were α = 0.93 (affective rumination), α = 0.88 (problem-solving pondering) and α = 0.84 (detachment).

Single items: age, gender, having dependent children and hours worked per week, were included in the survey in order to control for demographic data. Work pattern (1 = 9.00 to 17.00 (Mon-Fri), 2 = rotating shifts, 3 = non-standard shifts, 4 = nights/weekend work) and work status (1 = full time, 2 = part time, 3 = temporary worker, 4 = self-employed) were also collected as demographic data.

Negative and Positive affect (NA & PA; Watson, Clark, and Tellegen 1988) were also controlled for as they could possibly bias respondents in the survey (Brief et al. 1988) and influence how employees judge the way they perceive organisational justice in their work context as well as their level of embrittlement. NA and PA were measured using the PANAS scale (Watson, Clark, and Tellegen 1988). Respondents were asked to read the 20 single words and indicate to what extent they felt this way during the past month against a five-point scale (1 = very slightly or not at all to 5 = extremely).

Finally, the present study further controlled for two other variables (job demands and social support). Perceived job demands was measured using nine items from the Job Content Questionnaire (JCQ; Karasek et al. 1998). A sample item is “Do you have to work really hard?” Respondents were instructed to rate each statement on a four-point scale (1 = never/almost never to 4 = often). Cronbach’s alpha value for the present study was α = 0.73.

Workplace social support has been found to reduce the impact of stressors on employees (Griffith, Steptoe, and Ciopeley 1999) and could potentially impact employees’ perceptions on organisational justice as well as levels of embrittlement. A five-item scale developed by Uldén, Orth-Gomér, and Hofsson (1993) was used. However, only four of the five items were used in the present study as the first item “I have a good relationship with my supervisor” was measured with the Supervisory control over work performance scale (Dupré and Barling 2006). Each item was responded to on a four-point scale (1 = strongly disagree to 4 = strongly agree). Cronbach’s alpha value for the present study was α = 0.78.

Data analysis

Data analyses were performed using IBM SPSS Statistics 21 and the mediation analyses were performed using the dialog box PROCESS (Hayes 2013) on SPSS. For ease of
understanding, the results are presented in four sections. In the first section, mean and standard deviations for all study and control variables are presented. In the second section, correlation analysis on the main study variables and control variables are reported. The third section presents multiple regression models testing whether distributive injustice, procedural injustice, interpersonal injustice, informational injustice and supervisory over control are significant predictors of embitterment, and also whether embitterment is a significant predictor of affective rumination, problem-solving pondering and detachment, respectively. All regression models controlled for the effect of significant control variables. Finally, the fourth section presents the results of the mediation models.

Results

Mean and standard deviations for all study and control variables are presented in Table 1.

Bivariate correlation analysis was conducted using Pearson’s r correlation coefficient. As can be seen in the correlation matrix (Table 2), the correlation between all study variables was all significant and in the direction predicted by the hypotheses (1a–1e, 2a and c). The significant positive correlation between problem-solving pondering and embitterment was not in the direction predicted by hypothesis 2b. Identification of potential confounds was undertaken by reviewing the correlations between the proposed control variables and each outcome variable: embitterment for hypothesis 1 and affective rumination, problem-solving pondering and detachment for hypotheses 2a, 2b, 2c, respectively.

Hypothesis 1a–1e (embitterment as outcome) was further tested using a multiple regression approach in which significant control variables were entered in model 1 and the predictor variables (supervisory over control, distributive, procedural, interpersonal and informational justice) were entered in model 2. The results for embitterment are displayed in Table 3. Table 3 shows that the control variables accounted for 54.9% of the variance in embitterment. Control variables were statistically significant predictors. From the predictor variables entered in model 2, only supervisory control (25.5% of the unique variance) and procedural justice (0.7% of the unique variance) contributed significantly to the prediction of embitterment.

Hypothesis 2a (affective rumination as outcome) was further tested using a multiple regression approach in which significant control variables were entered in model 1 and the predictor variable (embitterment) was entered in model 2. The results for affective rumination are displayed in Table 4. Table 4 shows that the control variables accounted for 49.1% of the variance in affective rumination. Control variables were statistically significant predictors. The predictor variable embitterment (6% of the unique variance) entered in model 2 contributed significantly to the prediction of affective rumination.

Hypothesis 2b (problem-solving pondering as outcome) was further tested using a multiple regression approach in which significant control variables were entered in model 1 and the predictor variable (embitterment) was entered in model 2. The results for problem-solving pondering are displayed in Table 5. Table 5 shows that the control variables accounted for 21.4% of the variance in problem-solving pondering. With the exception of social support, the remaining control variables were significant predictors within the model. The predictor variable embitterment entered in model 2 did not contribute significantly to the prediction of problem-solving pondering.

Hypothesis 2c (detachment as outcome) was further tested using a multiple regression approach in which significant control variables were entered in model 1 and the predictor variable (embitterment) was entered in model 2. The results for detachment are displayed in Table 6. Table 6 shows that the control variables accounted for 29.6% of the variance in detachment. With the exception of years worked in current role and PA, the remaining control variables were significant predictors. The predictor variable embitterment entered in model 2 did not contribute significantly, albeit weakly to the overall prediction of detachment (0.7% of the unique variance).

The multiple regression analyses revealed that embitterment (6% of the unique variance) significantly predicted affective rumination. In order to test whether the feeling of embitterment mediates the relationship between the significant predictors of embitterment (i.e., procedural injustice and supervisory over control) and affective rumination, two mediation analyses were performed. The model coefficients for all mediation analyses of affective rumination are presented in Table 7.

The first mediation analysis revealed that procedural injustice indirectly influenced affective rumination through its effect on embitterment. As can be seen from Table 7,
Table 3. Results from multiple regression analysis predicting embitterment.

<table>
<thead>
<tr>
<th>Model 1</th>
<th>Model 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>$\beta$</td>
<td>$t$</td>
</tr>
<tr>
<td>1. Gender</td>
<td>0.082</td>
</tr>
<tr>
<td>2. Hours worked per week</td>
<td>0.130</td>
</tr>
<tr>
<td>3. Years in current role</td>
<td>0.134</td>
</tr>
<tr>
<td>4. NA</td>
<td>0.495</td>
</tr>
<tr>
<td>5. PA</td>
<td>-0.111</td>
</tr>
<tr>
<td>6. Social support</td>
<td>-0.374</td>
</tr>
<tr>
<td>7. Procedural Justice</td>
<td>-0.118</td>
</tr>
<tr>
<td>8. Distributive Justice</td>
<td>0.018</td>
</tr>
<tr>
<td>9. Informational Justice</td>
<td>-0.048</td>
</tr>
<tr>
<td>10. Interspersonal Justice</td>
<td>-0.067</td>
</tr>
<tr>
<td>11. Supervisory Justice</td>
<td>0.136</td>
</tr>
</tbody>
</table>

Adjusted $R^2$ 0.549 0.603
$F$ 69.122** 47.421**
$\Delta R^2$ 0.557 0.659

Notes: Control variables: 1 = Gender, 2 = hours worked per week, 3 = years in current role, 4 = NA, 5 = PA and 6 = social support. Study measures: 7 = Procedural Justice, 8 = Distributive Justice, 9 = Informational Justice, 10 = Interspersonal Justice and 11 = Supervisory Justice. $p < 0.05$, **$p < 0.001$.

Table 4. Results from multiple regression analysis predicting affective rumination.

<table>
<thead>
<tr>
<th>Model 1</th>
<th>Model 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>$\beta$</td>
<td>$t$</td>
</tr>
<tr>
<td>1. Gender</td>
<td>0.149</td>
</tr>
<tr>
<td>2. Hours worked per week</td>
<td>0.230</td>
</tr>
<tr>
<td>3. NA</td>
<td>0.091</td>
</tr>
<tr>
<td>4. PA</td>
<td>-0.138</td>
</tr>
<tr>
<td>5. Social support</td>
<td>-0.246</td>
</tr>
<tr>
<td>6. Embitterment</td>
<td>0.365</td>
</tr>
</tbody>
</table>

Adjusted $R^2$ 0.482 0.545
$F$ 61.509** 67.632**
$\Delta R^2$ 0.490 0.962

Notes: Control variables: 1 = Gender, 2 = hours worked per week, 3 = NA, 4 = PA and 5 = social support. Study measures 6 = Embitterment. $p < 0.05$, **$p < 0.001$.

perceptions of procedural injustice were significantly and positively correlated with embitterment ($\alpha$), which was associated with a subsequent increase in affective rumination ($\beta$). A bias-corrected bootstrap confidence interval for the indirect effect of embitterment ($\alpha \beta$ = 0.27) was entirely above zero (95% CI [0.20, 0.35]), demonstrating a significant effect. There was no evidence that procedural injustice influenced affective rumination independent of its effect on embitterment because the direct pathway ($\beta = 0.08$) was not statistically significant. These results represent a complete mediation effect of perceptions of procedural injustice through embitterment for its effect on affective rumination.

The second mediation analysis revealed that supervisory control indirectly influenced affective rumination.
Table 5. Results from multiple regression analysis predicting problem-solving pondering.

<table>
<thead>
<tr>
<th>Model 1</th>
<th>Model 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>β</td>
<td>t</td>
</tr>
<tr>
<td>1. Hours worked per week</td>
<td>0.42</td>
</tr>
<tr>
<td>2. NA</td>
<td>0.237</td>
</tr>
<tr>
<td>3. PA</td>
<td>0.179</td>
</tr>
<tr>
<td>4. Job demands</td>
<td>-0.036</td>
</tr>
<tr>
<td>5. Social support</td>
<td>-0.032*</td>
</tr>
<tr>
<td>6. Embitterment</td>
<td>0.214</td>
</tr>
<tr>
<td>Adjusted R²</td>
<td>0.220</td>
</tr>
</tbody>
</table>

Notes: Control variables: 1 = hours worked per week, 2 = NA, 3 = PA, 4 = Job demands and 5 = social support. Study measures 6 = Embitterment, p < 0.05; *p < 0.001.

Table 6. Results from multiple regression analysis predicting detachment.

<table>
<thead>
<tr>
<th>Model 1</th>
<th>Model 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>β</td>
<td>t</td>
</tr>
<tr>
<td>1. Hours worked per week</td>
<td>-0.218</td>
</tr>
<tr>
<td>2. Years worked in current role</td>
<td>-0.104</td>
</tr>
<tr>
<td>3. NA</td>
<td>0.082</td>
</tr>
<tr>
<td>4. PA</td>
<td>-0.254</td>
</tr>
<tr>
<td>5. Job demands</td>
<td>-0.036</td>
</tr>
<tr>
<td>6. Social support</td>
<td>0.256</td>
</tr>
<tr>
<td>7. Embitterment</td>
<td>-0.138</td>
</tr>
<tr>
<td>Adjusted R²</td>
<td>0.220</td>
</tr>
</tbody>
</table>

Notes: Control variables: 1 = hours worked per week, 2 = years worked in current role, 3 = NA, 4 = PA, 5 = Job demands and 6 = social support. Study measures 7 = Embitterment. p < 0.05; *p < 0.001.

through its effect on embitterment. As can be seen from Table 7, supervisory control was significantly and positively correlated with embitterment ($r_s$) which was associated with a subsequent increase in affective ruminations ($r_t$). A bias-corrected bootstrap confidence interval for the indirect effect of embitterment ($ab = 0.19$) was entirely above zero (95% CI [0.14, 0.25]), demonstrating a significant effect. However, there was also evidence that supervisory over control influenced affective ruminations independent of its effect on embitterment because the direct pathway ($c = 0.07$) remained statistically significant. These results represent a partial mediation effect of supervisory over control through embitterment for its effect on affective ruminations.

Discussion

The present study examined the association between organisational justice, supervisory over control, chronic embitterment and work-related ruminations. It was hypothesised that the four concepts of organisational injustice and supervisory over control would be associated with increased levels of embitterment at work (Hypotheses 1a–1e) and that embitterment would be associated with increased levels of affective ruminations and decreased levels of problem-solving pondering and detachment (Hypotheses 2a–2c). Except from hypothesis 2b, all the remaining hypotheses were supported: the four concepts of organisational injustice and supervisory over control were significantly correlated with embitterment in the direction predicted. Affective ruminations correlated positively with embitterment and detachment correlated negatively with embitterment. The significant positive correlation between problem-solving pondering and embitterment, however, was not in the direction predicted by hypothesis 2b. When applying the regression models, only supervisory over control and procedural justice significantly predicted embitterment; high levels of supervisory control predicted an increase in embitterment and low levels of procedural justice predicted an increase in embitterment. With regard to predictors of affective rumination, problem-solving pondering and detachment, the regression models indicated that only affective ruminations and detachment were significantly predicted by embitterment; high levels of embitterment predicted higher levels of affective ruminations and low levels of detachment.

The present study contributes to the understanding of the distinctive features of ruminations occurring in the experience of embitterment in the workplace. To begin with, findings from the regression model indicate that after controlling for variables that could possibly impact the association between our study variables, embitterment accounted for 6% of the unique variance in affective ruminations, suggesting that embitterment is indeed a significant factor in the context of insufficient recovery from work. As Linden (2003) suggested, individuals experiencing embitterment might regard their ruminations in a positive way, in that they consider it important not to forget the causes of their embitterment as they ‘feel the need to persuade others of the strengths of their cause’ (Linden, 2003, 198) and they can thus persevere in seeking remedies of their perceived injustice. However, given that affective ruminations can result in a negative emotional response (e.g. annoyance; feeling emotionally fatigued), embittered individuals might not actually benefit from engaging in such recurrent thoughts.

Hypothesis 2b was not supported by the findings. However, the fact that embitterment correlated positively with problem-solving pondering furthers our knowledge and understanding of the distinctive features of ruminations when embittered. Although the correlation between problem-solving pondering and embitterment was weaker than the correlation between affective ruminations and embitterment, the fact that embitterment correlates
significantly with problem-solving pondering might imply that individuals experiencing embitterment do consider problematic work issues (in their case, the possible cause of their embitterment), and might try to engage in ways that could potentially enable them to overcome embitterment. This finding also suggests that individuals experiencing embitterment may not necessarily be characterised as hopeless and as lacking for strive and motivation to make an effort to fix ‘things’, as Linden (2003) supported. Rather, this finding indicates that there is some hope in individuals experiencing embitterment and that they are willing to put some effort to solve the ‘problem’. Given the fact that embitterment did not significantly predict problem-solving pondering within the regression model, this might also however suggest that experiencing embitterment in the workplace and engaging in affective rumination about the causes of embitterment might encourage individuals to apply problem-solving practices to aspects of their work, other than the causes of embitterment.

With regard to what predicts chronic embitterment in the workplace, the present findings are consistent with Sensky et al. (2015) who reported an association between workplace embitterment and procedure justice, and further support Linden’s (2003) argument that embitterment is mainly attributed to the individual's experience of injustice or unfairness. However, the present findings specifically suggest that perceived unfairness, because of structural and organisational aspects, significantly predicts feelings of embitterment. The fact that reduced levels of perceived procedural justice predicted high levels of chronic embitterment indicates that when employees perceive injustice or unfairness in the procedures and processes that led to the decisions and distribution of outcomes, then they might experience feelings of embitterment.

A possible explanation for why procedural injustice and over controlling supervision were significant predictors of embitterment may be due to the fact that both predictors share in common the concept of control. Procedural justice is rooted in Thibaut and Walker’s (1975) criteria for procedural justice: process control (e.g., the ability to voice one’s views and arguments during a procedure) and decision control (e.g., the ability to influence the actual outcome itself), as well as Leventhal’s (1980) fair process criteria, such as consistency, lack of bias, correctability, representation, accuracy and ethicality. Thibaut and Walker (1975) argued that influence and sense of control are vital components of procedural justice, and Leventhal (1980) further argued that procedures should be representative of employees’ views and opinions. These assertions are violated when participation and autonomy are lacking in supervisor-subordinate interactions (Judge and Colquitt 2004).

The two main criteria of procedural justice (i.e., process and decision control) are reflected in Colquitt’s (2001) organisational justice perceptions measure employed in the present study and reflect the notion that lack of control has the ability to amplify perceptions of injustice. Moreover, over-controlling supervision accounted for 2.7% of the unique variance in embitterment. Dupré and Barling (2006) found that excessive control over employees’ performance may have a detrimental influence on employees. When employees are subject to controlling supervision, they may feel unjustly treated. The experience of being controlled in a large extent causes employees to feel that they personally lack freedom and control in the way they perform their work, which subsequently has been found in the present study to generate experiences of embitterment. Thus, organisational injustice in the form of lack of control predicts feelings of embitterment in the workplace.

This study also examined the mediating effect of chronic embitterment in the relationship between procedural injustice, supervisory over control and affective rumination. Chronic embitterment was found to be a significant mechanism through which procedural injustice and supervisory over control exerted their effect on affective rumination. Experiencing procedural injustice can generate feelings of embitterment leading to rumination, which in turn prevents employees from sufficiently recovering between work shifts.
Although the current study advances knowledge of the predictors and consequences of entrenchment in the workplace, there were also some limitations. The cross-sectional nature of the study makes it impossible to establish causality. Although our interpretation is that lack of perceived procedural justice predicts high levels of entrenchment, it is also possible that the direction of causality is reversed. Another limitation is the self-report nature of the data. According to Podsakoff et al. (2003), self-report measures threaten the validity of the conclusions about the relationship between measures because of the measurement error enclosed in common method variance (e.g. social desirability). However, this should have been lessened due to the fact that the online survey was anonymous and this should have reduced respondent’s evaluation apprehension and made them less likely to respond in a more socially desirable manner. Moreover, the use of different scale points for the various measures used, as well as the use of verbal labels for the scales, might have controlled for common method variance and reduced the likelihood of participants responding by rote (Podsakoff et al. 2003). Finally, due to the fact that 75% of the sample was above the cut-off point on the PTED scale (Lindell et al. 2009), this might impact the generalisability of the findings as people high in entrenchment might be more motivated to participate.

These findings nonetheless also raise some practical implications for organisations to consider. The fact that perceived organisational injustice is implicit in the experience of entrenchment suggests that the organisational management should be attentive to organisational justice issues and the amount of control exerted by supervisors. Organisational management should encourage open and responsive communications with employees as both a way for employees to express their views on a decision made that might impact their outcomes (e.g. getting a promotion) and also on issues that they might be facing at work or with their supervisors.

Disclosure statement

No potential conflict of interest was reported by the authors.

References


Appendix B. Post traumatic embitterment disorder Self-Rating Scale (PTED scale; Linden, Baumann, Lieberei, & Rotter, 2009)

Instructions: Please read the following statements and indicate to what degree they apply to you (0 = not at all true to 4 = extremely true). Please focus on your experience at work.

I have experienced one or more distressing events at work…

1. that hurt my feelings and caused considerable embitterment
2. that led to a noticeable and persistent negative change in my mental well-being
3. that I see as very unjust and unfair
4. about which I have to think over and over again
5. that causes me to be extremely upset when I am reminded of it
6. that triggers me to harbor thoughts of revenge
7. for which I blame myself and I am angry with myself
8. that led to the feeling that there is no sense to strive or to make an effort
9. that frequently makes me feel sullen and unhappy
10. that has impaired my overall physical well-being
11. that causes me to avoid certain places or people so as to not be reminded of them
12. that makes me feel helpless and disempowered
13. that triggers feelings of satisfaction when I think of the responsible party having to experience a similar situation to mine
14. that has led to a considerable decrease in my strength and drive
15. that has made me more irritable than before

16. that has resulted in me having to distract myself in order to experience my normal mood

17. that made it impossible for me to pursue occupational and/or family activities as before

18. that caused me to withdraw from friends and social activities

19. that frequently evokes painful memories
Appendix C. Ethical Approval for Study 1

Dear Miss Michailidis

UCE ref: UEC/2015/024/FAHS
Study Title: Exploring feelings about work and how individuals "switch-off" after work

On behalf of the Ethics Committee, I am pleased to confirm a favourable ethical opinion for the above research on the basis described in the submitted protocol and supporting documentation.

Date of confirmation of ethical opinion: 11 May 2015

The final list of documents reviewed by the Committee is as follows:

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<td>29 Apr 2015</td>
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<td>Questionnaire- tracked copy</td>
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<tr>
<td>Appendix A: Organisational Justice Measure</td>
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<td>29 Apr 2015</td>
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<tr>
<td>Appendix B: Supervisory control over work performance scale</td>
<td>3</td>
<td>29 Apr 2015</td>
</tr>
<tr>
<td>Appendix C: Post traumatic embellishment disorder Self-Rating Scale</td>
<td>3</td>
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</tr>
<tr>
<td>Appendix D: Work-related rumination Questionnaire</td>
<td>3</td>
<td>29 Apr 2015</td>
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<tr>
<td>Appendix E: Mood repair</td>
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<td>Appendix F: PANAS scale</td>
<td>3</td>
<td>29 Apr 2015</td>
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<td>Appendix G: Big Five Inventory</td>
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</tr>
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<td>Appendix H: Job Content Questionnaire</td>
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<td>Appendix I: Social support in the workplace- tracked copy</td>
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<td>Risk Assessment- tracked copy</td>
<td>3</td>
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</table>
This opinion is given on the understanding that you will comply with the University's Ethical Principles & Procedures for Teaching and Research.

If the project includes distribution of a survey or questionnaire to members of the University community, researchers are asked to include a statement advising that the project has been reviewed by the University's Ethics Committee.

If you wish to make any amendments to your protocol please address your request to the Secretary of the Ethics Committee and attach any revised documentation.

The Committee will need to be notified of adverse reactions suffered by research participants, and if the study is terminated earlier than expected with reasons. Please be advised that the Ethics Committee is able to audit research to ensure that researchers are abiding by the University requirements and guidelines.

You are asked to note that a further submission to the Ethics Committee will be required in the event that the study is not completed within five years of the above date.

Please inform me when the research has been completed.

Yours sincerely,

[Signature]

Dr Sophie Wahrens
Research Integrity and Governance Officer, Research & Enterprise Support

Copy to: Prof Mark Cropley, School of Psychology, FAHS
Appendix D. Organisational Justice Measure (Colquitt, 2001).

Instructions: Below you will find a series of statements. Please rate each item using a 5-point scale with anchors of 1 = to a small extent to 5 = to a large extent.

Procedural justice

The following items refer to the procedures used to arrive at your outcome (e.g. pay, promotions, etc.). To what extent:

1a. Have you been able to express your views and feelings during those procedures?
2a. Have you had influence over the outcome (e.g. pay, promotions, etc.) arrived at by those procedures?
3a. Have those procedures been applied consistently?
4a. Have those procedures been free of bias?
5a. Have those procedures been based on accurate information?
6a. Have you been able to appeal the outcome (e.g. pay, promotions, etc.) arrived at by those procedures?
7a. Have those procedures upheld ethical and moral standards?

Distributive justice

The following items refer to your outcome (e.g. pay, promotions, etc.). To what extent:

1b. Does your outcome for example pay, promotions, etc., reflect the effort you have put into your work?
2b. Is your outcome for example pay, promotions, etc., appropriate for the work you have completed?
3b. Does your outcome for example pay, promotions, etc., reflect what you have contributed
to the organization?

4b. Is your outcome for example pay, promotions, etc., justified, given your performance?

Interpersonal justice

The following items refer to your supervisor that enacted the procedure. To what extent:

1c. Has he/she treated you in a polite manner?

2c. Has he/she treated you with dignity?

3c. Has he/she treated you with respect?

4c. Has he/she refrained from improper remarks or comments?

Informational justice

The following items refer to your supervisor that enacted the procedure. To what extent:

1d. Has he/she been able candid in his/her communications with you?

2d. Has he/she explained the procedures thoroughly?

3d. Were his/her explanations regarding the procedures reasonable?

4d. Has he/she communicated details in a timely manner?

5d. Has he/she seemed to tailor his/her communications to individuals’ specific needs?
Appendix E. Supervisory control over work performance scale (Dupré & Barling, 2006).

Instructions: Please indicate the extent to which you agree or disagree with each of the 8 items presented below (1 = strongly disagree to 7 = strongly agree).

1. I have to consult my supervisor about how I spend my time doing my work
2. My supervisor does not give me the freedom to do things that I want to do in my work
3. My supervisor places constraints on when I take breaks from my work
4. My supervisor tries to exert influence over decisions regarding my work
5. My supervisor closely monitors my performance for errors
6. My supervisor pressures me to work at a certain pace
7. I am closely monitored by my supervisor at work
8. My supervisor is aware of what I do on a daily basis in my work
Appendix F. Work-related rumination Questionnaire (WRPQ; Cropley et al., 2012).

Instructions: Please indicate on a 5-point scale (1 = very seldom or never, 2 = seldom, 3 = sometimes, 4 = often, 5 = very often or always) how frequent you engage in each of the different type of ruminative thoughts:

**Affective rumination**

1a. Do you become tense when you think about work-related issues during your free time?
2a. Are you annoyed by thinking about work-related issues when not at work?
3a. Are you irritated by work issues when not at work?
4a. Do you become fatigued by thinking about work-related issues during your free time?
5a. Are you troubled by work-related issues when not at work?

**Problem-solving pondering**

1b. After work I tend to think of how I can improve my work-related performance
2b. In my free time I find myself re-evaluating something I have done at work
3b. Do you think about tasks that need to be done at work the next day?
4b. I find thinking about work during my free time helps me to be creative
5b. I find solutions to work-related problems in my free time

**Detachment**

1c. Do you feel unable to switch off from work?
2c. I am able to stop thinking about work-related issues in my free time
3c. Do you find it easy to unwind after work?
4c. I make myself switch off from work as soon as I leave
5c. Do you leave work issues behind when you leave work?
Appendix G. Control variables

**PANAS scale** (Watson et al., 1988) – Negative & Positive affect items

Instructions: The scale below consists of 20 single words that describe negative and positive emotions and feelings. Read each item and then indicate to what extent you have experienced each emotion/feeling during the last month on a 5-point scale (1 = very slightly or not at all, 2 = a little, 3 = moderately, 4 = quite a bit, 5 = extremely).

Scared/ Afraid/Upset/Distressed/Jittery /Nervous/Ashamed/Guilty/Irritable /Hostile/Enthusiastic/Interested/Determined/Excited/Inspired/Alert/Active/Strong/Proud/Attentive

**Job Content Questionnaire** (JCQ; Karasek et al., 1998).

Instructions: Please indicate on a 4-point scale (1 = never/almost never, 2 = seldom/rarely, 3 = sometimes, 4 = often) how frequent you engage in each of the job aspects below:

1. Do you have to work very fast?
2. Do you have to work intensely?
3. Do you have enough time to do everything?
4. Are your tasks such that others can help you if you do not have time?
5. Do different groups at work demand different things from you?
6. Do you have time to do the same thing over and over again?
7. Does your job provide you with a variety of interesting things?
8. Is your job boring?
9. Do you have the possibility of learning new things through your job?
10. Does your work demand a high level of skill or expertise?

11. Does your job require to take initiative?

Social support in the workplace (Undén et. al, 1991)

Instructions: Please indicate on a 4-point scale (1= strongly disagree to 4 = strongly agree) the extent to which you agree or disagree with each statement.

1. I am getting on well with my co-workers

2. There is a pleasant atmosphere at my workplace

3. There is a good cohesion at the workplace

4. There are often conflicts and arguments at work
Appendix H. Ethical Approval for Study 2

15 February 2016

Dear Miss Michailidis

UEC ref: UEC/2016/011/FHMS, Queries 1
Study Title: Exploring how feelings about work can impact employees' well-being: a longitudinal study

On behalf of the Ethics Committee, I am pleased to confirm a favourable ethical opinion for the above research on the basis described in the submitted protocol and supporting documentation.

Date of confirmation of ethical opinion: 15 February 2016

The final list of documents reviewed by the Committee is as follows:

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This opinion is given on the understanding that you will comply with the University’s Ethical Principles & Procedures for Teaching and Research.

If the project includes distribution of a survey or questionnaire to members of the University community, researchers are asked to include a statement advising that the project has been reviewed by the University’s Ethics Committee.

If you wish to make any amendments to your protocol please address your request to the Secretary of the Ethics Committee and attach any revised documentation.

The Committee will need to be notified of adverse reactions suffered by research participants, and if the study is terminated earlier than expected with reasons. Please be advised that the Ethics Committee is able to audit research to ensure that researchers are abiding by the University requirements and guidelines.

You are asked to note that a further submission to the Ethics Committee will be required in the event that the study is not completed within five years of the above date.

Please inform me when the research has been completed.

Yours sincerely

pp

Mrs Gill Fairbairn
Head of Research Development and Governance, Research & Enterprise Support

Copy to. Professor Mark Cropley, School of Psychology, Faculty of Health and Medical Sciences
Appendix I. Ethical Approval for Study 3

Miss Evie Michailidis
School of Psychology
Faculty of Health and Medical Sciences

12 September 2016

Dear Miss Michailidis

UEC ref: UEC/2016/049/FHMS Amendment 1
Study Title: Healing the wounds of embitterment: Exploring the benefits of expressive writing using a randomised control trial.

I am writing to inform you that the Chairperson, on behalf of the Ethics Committee, has considered the Amendment requested to the above protocol and supports a favourable ethical opinion on the understanding that the University’s Ethics Handbook for Teaching and Research is observed. Please be advised that the Ethics Committee is able to audit research to ensure that researchers are abiding by the University requirements and guidelines.

If the project includes distribution of a survey or questionnaire to members of the University community, researchers are asked to include a statement advising that the project has been reviewed by the University’s Ethics Committee.

Date of confirmation of ethical opinion: 03 August 2016
Date of favourable ethical opinion of amendment to protocol: 12 September 2016

The list of amended documents reviewed and approved by the Chairperson is as follows:

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<td>31 Aug 2016</td>
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<td>31 Aug 2016</td>
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<td>4</td>
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<tr>
<td>Participant Information Sheet- tracked copy</td>
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<td>12 Sep 2016</td>
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Please note: you should only be using the versions of the documents referred to in this letter. If you intend to update these documents, you must notify the University Ethics Committee.

Yours sincerely

[Signature]

Miss Madeleine Blair
Research Integrity and Governance Co-ordinator, Research & Enterprise Support

Copy to. Professor Mark Cropley, School of Psychology, FHMS
Appendix J. General instructions for writing exercise (study 3)

Dear Participant (ID number),

Thank you for agreeing to take part in the study.

Please follow carefully the instructions below:

1. On receipt of the pack please set aside 20 minutes a day to do the writing exercise for three consecutive days.

2. Instructions for each day are in sealed envelopes each labelled as “Day 1”, “Day 2” and “Day 3”.

3. Please open each set of instructions on the relevant day i.e. on day 1 open the envelope labelled as “Day 1”.

4. Spare sheets of paper are provided in the sealed envelopes

5. When completing the writing exercise, do not worry about spelling, sentence, structure, or grammar. The only rule is that once you begin writing continue to do so until 20 minutes are up.

6. After the three days of writing please return the completed exercise of all three days in the freepost envelope provided, and post it to the researcher.

7. If you would like a copy of your writing please email the researcher and a copy will be posted to you.

One month and three months after completing the writing exercise you will be sent an email asking you to complete an online questionnaire. If you have any questions or concerns throughout this study please contact Evie Michailidis at e.michailidis@surrey.ac.uk.

Thank you very much for your contribution to the study.
Appendix K. Writing instructions: Expressive Writing group

Day 1

Please use the blank paper provided and note down the date and time that you complete the writing exercise. Please also note down your participant ID number, which can be found on the first page of the pack (General instructions).

Today I would like you to set aside 20 minutes to write about your very deepest thoughts and feelings about your work. This could be a stressful experience at work that continues to bother you. For example, a situation that is difficult for you to think/talk about, makes you feel anxious or upset when you are reminded of it or that keeps coming back into your thoughts. This should preferably be an experience that you have not shared too much with others.

In your writing I would like you to really let go and explore your very deepest emotions and thoughts. You might tie your topic to your relationship with others, such as partner or friends. You might link your writing to your future and who you would like to become, to whom you were in the past, or to who you are now.

Do not worry about spelling, sentence structure or grammar. The only instruction is once you start writing you continue until 20 minutes are up. All of your writing will remain confidential. We will identify your writing with the ID number rather than your name.

Day 2

As before please use the blank paper provided and note down the date and time that you complete the writing exercise. Please also note down your participant ID number, which can be found on the first page of the pack (General instructions).

Today I would like you to set aside 20 minutes to write about your very deepest thoughts and feelings about your work. This could be a stressful experience at work that continues to bother you. For example, a situation that is difficult for you to think/talk about, makes you feel anxious or upset when you are reminded of it or that keeps coming back into your thoughts. This should preferably be an experience that you have not shared too much with others.

You can write about the same thing you wrote about yesterday or you can write about something different, it is entirely up to you. In your writing I would like you to really let go and explore your very deepest emotions and thoughts. You might tie your topic to your relationship with others, such as partner or friends. You might link your writing to your future and who you would like to become, to whom you were in the past, or to who you are now.

Remember there is no need to worry about spelling, sentence structure or grammar. The only instruction is once you start writing you continue until 20 minutes are up. All of your writing will remain confidential. We will identify your writing with the ID number rather than your name.
Day 3

As before please use the blank paper provided and note down the date and time that you complete the writing exercise. Please also note down your participant ID number, which can be found on the first page of the pack (General instructions)

It is the last day of writing. As before I would like you to set aside 20 minutes to write about your very deepest thoughts and feelings about your work. This could be a stressful experience at work that continues to bother you. For example, a situation that is difficult for you to think/talk about, makes you feel anxious or upset when you are reminded of it or that keeps coming back into your thoughts. This should preferably be an experience that you have not shared too much with others.

You can write about the same thing you’ve written about on the last two days or you can write about something different, again it is entirely up to you. In your writings, I would like you to really let go and explore your very deepest emotions and thoughts. You might tie your topic to your relationship with others, such as partner or friends. You might link your writing to your future and who you would like to become, to whom you were in the past, or to who you are now.

Remember there is no need to worry about spelling, sentence structure or grammar. The only instruction is once you start writing you continue until 20 minutes are up. All of your writing will remain confidential. We will identify your writing with the ID number rather than your name.
Appendix L. Writing instructions: Factual writing group

Day 1

Please us the blank paper provided and note down the date and time that you complete the writing exercise. Please also note down your participant ID number, which can be found on the first page of the pack (General instructions).

Today I would like you to set aside 20 minutes to write about your weekday routine, from the time that you get up to the time that you go to bed. I want you to be as detailed as possible. I would like a factual account rather than details of your emotions and opinions.

You might start when your alarm goes off and you get out of bed. You could include a factual description of the activities you do, the places you go, which buildings and objects you pass by as you go from place to place. The most important thing in your writing is for you to describe your day as accurately and in as much detail as possible.

Do not worry about spelling, sentence structure or grammar. The only instruction is once you start writing you continue until 20 minutes are up. All of your writing will remain confidential. We will identify your writing with the ID number rather than your name.

Day 2

As before please use the blank paper provided and note down the date and time that you complete the writing exercise. Please also note down your participant ID number, which can be found on the first page of the pack (General instructions).

Today is the second day of writing and I would like you to again set aside 20 minutes to write. In today’s writing exercise I would like you to give a factual account of exactly what food you ate yesterday from the time you got up until the time you went to bed. I want you to be as detailed as possible.

You might describe what times of the day you ate and who you were with. You could include details of who prepared the food, how it was prepared and where you were when you ate. The most important thing in your writing is for you to describe exactly what you can remember about your meals and snacks yesterday as accurately and in as much detail as possible.

Remember there is no need to worry about spelling, sentence structure or grammar. The only instruction is once you start writing you continue until 20 minutes are up. All of your writing will remain confidential. We will identify your writing with the ID number rather than your name.

Day 3

As before please use the blank paper provided and note down the date and time that you complete the writing exercise. Please also note down your participant ID number, which can be found on the first page of the pack (General instructions).

It is the last day of writing. As before I would like you to set aside 20 minutes to write. Today I would like you describe what you do with your leisure time. As before this should be a factual account and as detailed as possible.
You might include a description of your interests or the activities you like to do, the place(s) where you do these things or how long you have been interested in them. The most important thing in your writing is for you to describe exactly what you do in your leisure time as accurately and in as much detail as possible.

Remember there is no need to worry about spelling, sentence structure or grammar. The only instruction is once you start writing you continue until 20 minutes are up. All of your writing will remain confidential. We will identify your writing with the ID number rather than your name.
Appendix M. Utrecht Work Engagement Scale (UWES; Schaufeli et al., 2002)

Instructions: The following 17 statements are about how you feel at work. Please read each statement carefully and decide if you ever feel this way about your job. If you have never had this feeling, select ‘0’ (zero). If you have had this feeling, indicate how often you feel it by using a 6-point scale with anchors of 0 = never to 6 = always/every day.

1. At my work, I feel bursting with energy (V)
2. I find the work I do full of meaning and purpose (D)
3. Time flies when I am working (A)
4. At my job I feel strong and vigorous (V)
5. I am enthusiastic about my job (D)
6. When I am working, I forget everything else around me (A)
7. My job inspires me (D)
8. When I get up in the morning, I feel like going to work (V)
9. I feel happy when I am working intensely (A)
10. I am proud on the work I do (D)
11. I am immersed in my work (A)
12. I can continue working for very long periods at a time (V)
13. To me, my job is challenging (D)
14. I get carried away when I’m working (A)
15. At my job, I am very resilient, mentally (V)
16. It is difficult to detach myself from my job (A)
17. At my work I always preserve, even when thing do not go well (V)
Appendix N. Job satisfaction scale (Warr et al., 1979)

This set of items deals with various aspects of your job. I would like you to tell me how satisfied or dissatisfied you feel with each of these features of your present job. Just indicate how satisfied or dissatisfied you are with it by using a 7 point scale (1 = extremely dissatisfied, 7 = extremely satisfied)

1. The physical work conditions
2. The freedom to choose your own method of working
3. Your fellow workers
4. The recognition you get for good work
5. Your immediate boss
6. The amount of responsibility you are given
7. Your rate pay
8. Your opportunity to use your abilities
9. Industrial relations between management and workers in your firm
10. Your chance of promotion
11. The way your firm is managed
12. The attention paid to suggestions you make
13. Your hours of work
14. The amount of variety in your job
15. Your job security
Appendix O. The Insomnia Severity Index (ISI; Bastien et al., 2001)

1. Please rate the severity of your sleep disturbances during the last month (0 = none to 4 = very severe).

   Difficulty falling asleep

   Difficulty staying asleep

   Problems waking up too early

2. During the past month, how satisfied/dissatisfied are you with your sleep pattern? (0 = very satisfied to 4 = very dissatisfied)

3. To what extent do you consider your sleep problems to have interfered (0 = not at all interfering to 4 = very much interfering) with their daily functioning (e.g. daytime fatigue, mood, ability to function at work, memory, mood etc.)

4. How noticeable (0 = not at all noticeable to 4 = very much noticeable) to others do you think your sleep problems are in terms of impairing the quality of your life?
Appendix P. Follow-up Questionnaire on Participants’ Subjective Experience (FQPSE; Pennebaker et al., 1990).

Please answer the following questions on a scale from 1-7 with 1 being “not at all” and 7 being “a great deal”.

1. Since your participation in the writing experiment, how much have you thought about what you wrote?
2. Since the writing experiment, how much have you talked to other people about what you wrote?
3. Looking back on the experiment, to what degree do you feel that the experiment had a positive long-lasting effect on you?
4. Looking back on the experiment, to what degree do you feel that the experiment had a negative long-lasting effect on you?
5. Since the experiment, how happy have you felt?
6. Since the experiment, how sad or depressed have you felt?
7. Looking back on the experiment, to what degree has this experiment been valuable or meaningful for you?
8. If you had the chance to do it over again, would you participate in this study?
   definitely yes___ probably yes____ do not know ___ probably no ____ definitely no__
Appendix Q. Z-scores for skew (Zskew) and kurtosis (Zkurtosis) for study 3 variables

Zskew and Zkurtosis scores for main study variables at each time point for the expressive writing group

<table>
<thead>
<tr>
<th>Variable</th>
<th>Zskew</th>
<th>Zkurtosis</th>
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<tbody>
<tr>
<td>EMB (base)</td>
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<td>-1.22</td>
</tr>
<tr>
<td>EMB (1m)</td>
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<td>EMB (3m)</td>
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<td>AFR (base)</td>
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<tr>
<td>VIG (base)</td>
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</tr>
<tr>
<td>VIG (1m)</td>
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</tr>
<tr>
<td>SLEEP (3m)</td>
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<td>-0.24</td>
</tr>
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Zskew and Zkurtosis scores for main study variables at each time point for the factual writing group

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<tr>
<th>Variable</th>
<th>Zskew</th>
<th>Zkurtosis</th>
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</thead>
<tbody>
<tr>
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<tr>
<td>VIG (base)</td>
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<td>SLEEP (1m)</td>
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<td>SLEEP (3m)</td>
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</tbody>
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